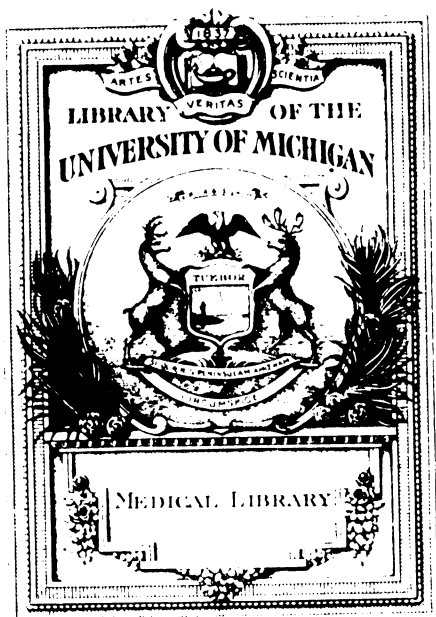


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DEPARTMENT OF PUBLIC INSTRUCTION

Philippine Island Health Service
MONTHLY BULLETIN

OF THE

PHILIPPINE HEALTH SERVICE

VOL. I

JULY, 1921

No. 1

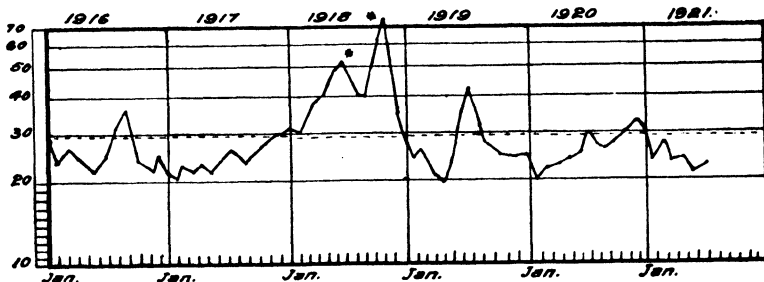
The care of the public health is the first duty of the statesman.—DISRAELI.



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1. Anticholera Vaccination in the Philippines.
2. The "Massacre of Innocents" Must Stop.
3. Vital Statistics for July, 1921.

ANNUAL DEATH RATES BY MONTH, CITY OF MANILA



* Influenza
..... Average Death Rate for The last five Years.

MANILA
BUREAU OF PRINTING
1921

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THE PHILIPPINE HEALTH SERVICE

EXECUTIVE HEALTH OFFICERS.

Director, V. DE JESUS, M. D.
Assistant Director, S. V. DEL ROSARIO, M. D.
Division of Sanitation in the City of Manila.
A. CATANJAL, M. D.
Division of Sanitation in the Provinces.
E. HERNANDO, M. D.
Division of Mindanao and Sulu.
J. FAJARDO, M. D.
Office of Vital Statistics and Epidemiology.
M. GÓMEZ, M. D.
Office of Sanitary Engineering.
E. L. BARBER.

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G. DE OCAMPO, M. D., *Member*.
TOMAS EARNSHAW, *Member*.
LUIS TORRES, LL. B. *Member*.
L. LOPEZ RIZAL, M. D., *Secretary*.

PHILIPPINE HEALTH SERVICE.

MANILA, August 12, 1921.

ADMINISTRATIVE ORDER No. 8.

PARAGRAPH 12. A Committee is hereby created to take charge of the publication of the *Monthly Bulletin of the Philippine Health Service* to be known as The Committee on the Monthly Bulletin. It will consist of the following:

S. V. del Rosario, M. D., *Chairman*.
L. Lopez Rizal, M. D., *Member*.
J. P. Bantug, M. D., *Member*.
M. V. Argüelles, M. D., *Member*.

This Committee will be responsible to the Director for the editing and publication of the *Monthly Bulletin of the Philippine Health Service*. It will collect and compile data, articles, statistics, etc., pertaining to public health and publish them for the purpose of instructing the public as well as informing other sanitarians and the medical and its associated professions here and abroad about health activities in the Philippine Islands. Special attention should be devoted to the publication of information on the prevalence and geographic distribution of preventable and communicable diseases in the Philippine Islands. The Bulletin should be the connecting link between the Philippine Health Service and the public, and the "common people," to whose welfare the Service is devoted.

The Committee will automatically cease to exist at the end of each calendar year. The Committee for the subsequent year shall be created anew by the Director of Health to begin activities on January first.

Before its dissolution, the Committee should render an annual report to the Director to contain in general the following: (1) past activities; (2) recommendations for the subsequent year; (3) budget for subsequent year.

This Committee will meet at the call of the Chairman.

V. JESUS,
Director of Health.

med.
Dir:

MONTHLY BULLETIN
OF THE
PHILIPPINE HEALTH SERVICE

VOL. I

JULY, 1921

No. 1

ANTI-CHOLERA VACCINATION

REPORT OF THE COMMITTEE ON ANTI-CHOLERA VACCINATION

CONCERNING THE DOSAGE AND STUDY OF REACTION AND SEQUELAE IN PERSONS VACCINATED BY CHOLERA VACCINE

It has been decided by the Committee to use in these investigations a preparation of cholera vaccine which contains dead bacteria exclusively; consequently, only two kinds of preparations were considered, that is, the cholera vaccine, prepared by the method of Kolle, and the killed sensitized vaccine.

METHOD OF PREPARATION OF CHOLERA VACCINE

About 10 strains of cholera vibrios, isolated from known cholera patients or persons who died of cholera and identified as cholera vibrio, were grown on agar medium for 18 to 20 hours in incubator at 37° C. The growth was suspended in a definite amount of sterile physiological salt solution and heated at 60° C. for one-half hour.

The number of bacteria was then estimated by Wright's method. Sufficient carbolized salt solution was added to dilute the bacterial suspension so as to contain 1,000 millions bacteria per c. c. and 0.5 per cent phenol. It was then tested for sterility and filled into glass vials, sealed and labeled.

The sensitized vaccine was prepared in the same way; only when finished, a measured quantity of it was mixed with equal amounts of cholera immune serum and allowed to stay in incubator for about two hours, in refrigerator for 18 hours, then washed three times with sterile carbolized salt solution. After the last washing, the sediment was suspended in an amount of salt solution equal to the original amount of cholera vaccine. Thus, it contained 1,000 millions of killed and sensitized cholera vibrios in 0.5 per cent phenol solution in physiological salt solution.

CHOICE OF PERSONS TO BE VACCINATED. TECHNIQUE OF VACCINATION AND DOSAGE

It being the main object of the Committee at this stage to study the dosage of cholera vaccine and the sequelae of anti-cholera vaccination, it was decided to vaccinate first strong healthy, adult persons using small doses. The Committee was fortunate in securing the coöperation of the medical corps of the Philippine Constabulary for this purpose. A letter of thanks and appreciation has since been forwarded by the Chairman to Dr. A. Lejano, Captain, Philippine Constabulary, for his lively interest and valuable coöperation.

The persons to be vaccinated were selected beforehand, given a physical examination, their urine examined, and the temperature taken. All those who showed abnormal findings in urine or elevation of temperature above 37° C. were excluded from the list of persons to be vaccinated the subsequent day.

All persons who were engaged in manipulation of the vaccine or syringes washed their hands with soap and disinfected them with lysol.

The vaccination proper was performed by the use of wholeglass 2 c. c. syringes, armed with platinum needle. The syringe and the needles were first thoroughly cleaned and sterilized by boiling for 10 minutes. Then the ampule, containing the cholera vaccine, was vigorously shaken so as to distribute evenly the sediment which forms in the container upon storing. By tapping the narrow neck of the ampule with the finger, the liquid which remained in the neck returned to the bulb of the ampule. The narrow neck of the ampule was then flamed and broken off. Holding the bulb in one hand and using a piece of sterile cotton between the thumb and the first finger of the other hand, the danger of cutting the hand is greatly diminished. The broken end of that part of the vial which contained the vaccine was then flamed, the needle introduced inside of the bulb and the contents aspirated. Care was taken to expel all the air bubbles from the syringe before the actual injection was given.

The vaccination proper consists of subcutaneous injection of a definite amount of the vaccine. As a place of injection, the outer surface of the left arm was selected at the height of the deltoid insertion, a little posteriorly. The skin was cleansed first with alcohol to the extent of about 5 cm. sq. and then touched with tincture of iodine.

A duplicature of skin covering the cleansed area was lifted with left-hand fingers and the needle driven quickly through the skin. By slowly pushing the piston of the syringe, the desired amount was injected. This finished, the needle was quickly withdrawn and the place of injection slightly massaged with a piece of sterile cotton. No cover or bandage on the point of injection was found necessary. After the first injection, the needle was flamed red-hot and the second person was vaccinated in the same way.

In order to keep record of vaccinated persons, individual cards were devised, giving the name, age, sex, temperature before injection, one, two, three, and four hours after injection, as well as evening temperature of that day and morning and evening temperature of the next day.

It was deemed prudent to commence with a small dose. The dose given to the first group amounted to 500 millions. Since the reactions following this first inoculation proved to be slight in degree, the second dose to the same persons was doubled; that is to say, 1,000 millions were injected the second time.

The second, third, and fourth groups received one injection only, 1,000 millions, 1,250 millions, and 1,500 millions, respectively.

In recording the sequelae of anti-cholera vaccination, attention was paid to both local and general reactions. The place of injection was inspected, the temperature was recorded, and such symptoms as the vaccinated persons may give were recorded.

It occurred that the local reaction was practically negligible, with a slight swelling of the actual point of injection, sometimes with redness and tenderness.

The general reaction is best seen from the following table:

Total number of adults vaccinated.....	100
Number of persons showing elevation of temperature above 37° C....per cent....	56
Slight headache and pains in the joints..... per cent....	4
Nausea	0
Diarrhoea	0
Collapse	0
Average rise in temperature.....	37.3° C.
Average highest rise in temperature.....	38.6° C.
Highest rise of temperature.....	38.2° C.

Arranged in groups by elevation of temperature.

Temperature.....	37.1°-37.8°	37.8°-37.5°	37.5°-37.7°	38.2°
Number of persons.....	41 per cent	8 per cent	6 per cent	1 per cent
	49 per cent		7 per cent	

It is evident from these data that the reaction following^{*} the anti-cholera vaccination is mild in degree. It is most likely that the elevation of temperature above 38° C. in one case was due to other causes since the temperature in this case remained practically normal for 24 hours and reached 38.2° C. in the evening of the next day after vaccination, that is, 32 hours after the injection.

One interesting finding was made in the first group of vaccinated persons; namely, the observation that the second injection, although a double dose, produced far less *reaction* in the same individuals than did the first one.

Since the preliminary investigations in adults gave satisfactory results as far as the doses and sequelae are concerned, the next step of the Committee was to investigate these conditions in young individuals.

Permission was secured to perform vaccinations in the City Reformatory where inmates between eight and 18 years of age were inoculated with cholera vaccine. Acknowledgment and thanks were expressed to the Honorable Dr. J. Lukban, Mayor of Manila, for the permission which he kindly granted to vaccinate the inmates of the Reformatory.

The procedure of vaccination in children was the same as already described in adults, with the difference that the first group received 250 millions, while the rest of them received one injection of 500 millions.

The results of these investigations are evident from the following table:

Total number of children vaccinated.....	100
Number of children showing elevation of temperature above 37°....per cent....	2
Slight headache and pain in joints.....	0
Nausea	0
Collapse	0
Average rise in temperature.....	37.2° C.
Average highest rise in temperature.....	37.2° C.
Highest rise in temperature.....	37.2° C.

Arranged in groups by elevation of temperature.

Temperature.....	37.1°-37.8°	37.8°-37.5°	37.5°-37.7°	37.7°-38.2°
Number of children.....	2 per cent	0	0	0

No essential difference as to frequency or intensity of reaction was noticed between the sensitized and nonsensitized vaccine, or between low

/ doses (500) and double or treble doses. Individual susceptibility appeared to play a more important part than the variation of dosage as far as used.

For the sake of comparison, some records of antityphoid vaccination performed in 1913 on Constabulary officers are here given. These records are kindly placed at our disposal by Dr. Liborio Gomez, member of the Philippine Constabulary Medical Corps at that time.

Table showing the reaction following antityphoid vaccination:

(Taken from a report of Dr. Liborio Gomez.)

Total number of adults vaccinated.....	40
Number of persons showing elevation of temperature above 37° C....per cent....	89

Arranged in groups according to the degree of fever.

Temperature	37°-37.7°	37.37°-38.3°	38.3°-38.83°	38.7° C.
Percentage of persons (typhoid)	62 per cent	15 per cent	5 per cent	7 per cent

RÉSUMÉ OF FINDINGS AND RECOMMENDATIONS.

1. Cholera vaccine produces less reaction than typhoid.
2. The second injection appears to produce lesser reaction than the first one.
3. The preparation to be used should be a vaccine, which has been killed by heat of 60° C. for one-half hour and carbolized. It should contain 1,000 millions per c. c.
4. The dose for healthy adults in the Philippines should be 1,000 millions.
5. One injection should be given in case of field vaccination on a large scale. If practicable two injections should be given (500 to 1,000 millions).
6. The public should be enlightened on the subject by leaflets in plain intelligible language as to the nature of the vaccination and its advantages.
7. Anti-cholera vaccination should be practiced by physicians in charge of health stations and by provincial health officers on cholera contacts.
8. Private physicians desiring to use the vaccine should be encouraged.
9. Sufficient funds should be secured to enable the free distribution of anti-cholera vaccine.
10. The Anti-cholera Vaccination Committee should continue its existence and should direct and investigate all questions which may arise during the anti-cholera vaccination campaign. It should be enlarged by at least two young physicians in the Philippine Health Service, who could become acquainted with the handling and method of vaccination to be able to help the Committee to carry out investigations on a larger scale. All records and observations made by physicians throughout the Islands should be made automatically accessible to this committee to enable them to change the procedure, enlarge the doses, and introduce new preparations of cholera vaccine as may be desirable from time to time.

RECOMMENDATIONS FOR AN ISLAND-WIDE ANTI-CHOLERA VACCINATION

1. Instruction of supervising sanitary officers in the technique of anti-cholera vaccination.
2. These officials to instruct all district health officers of their respective divisions.
3. The district health officers to instruct the municipal sanitary officers.
4. These last-mentioned officials to perform the actual vaccination.

5. In case that vaccinations are performed by these officials during an outbreak of cholera, the morbidity and mortality of the vaccinated and non-vaccinated population should be given. In case that cholera infection occurs in vaccinated persons, the date of vaccination and the date of disease and eventual death or recovery should be given. This information is essential for the Committee to have in order to study further the effects of the vaccination.

J. P. BANTUG, M. D., *Chairman.*

PROCESO GABRIEL, M. D., *Member.*

OTTO SCHÖBL, M. D., *Member.*

*Committee on Anti-cholera Vaccination,
Philippine Health Service.*

"MASSACRE OF INNOCENTS" MUST STOP

P. D. GUTIERREZ, M. D., *Philippine Health Service.*

The civilized world has shown its abhorrence of the wanton ravage of innocents. Against the iron and steel militarism which could decree the starving and rape of unoffending non-combatant villagers, patient peasant mothers, harmless children and helpless old men, the sinking of neutral and hospital ships, and the burning of peaceful hamlets, the civilized human family has risen in wrath.

But the massacre of innocents is not ended. In the towns and cities of our own country, there remain destroyers of women and children whose toll of victims in the long years of peace is greater and more terrible than the victims of the late war. These enemies of civilization are the venereal diseases—gonorrhoea and syphilis.

WHY DANGEROUS AND TREACHEROUS

The germs of syphilis are small—so small that they can be seen only through the microscope—but they are none the less dangerous and treacherous in their attack. They attack not only those men and women guilty of immoral sexual relations. Such people are largely responsible for the spread of syphilis, but its victims are often blameless wives and helpless children. It invades the home and is carried from the husband to the wife and other members of the family. An innocent woman or child may be betrayed to the enemy by a kiss. Syphilis is often very hard to detect even when it is transmissible, and a husband may expose his wife entirely against his wishes and without the knowledge of either one of them. If uncured, it enters the blood stream of man, woman, or child and there intrenches itself for an attack on the vital organs and flesh. It may attack nerve-centers and the brain, causing locomotor ataxia, paralysis, paresis (softening of the brain), and insanity. Sometimes in the earlier stages, when most readily cured, it is least visible and apparent. A germ enemy intrenched on the nation's borders!

But terrible as are the effects of uncured syphilis transferred to an innocent wife, the most devastating ravage of this arch-disease enemy is its transmission from the mother to the child before birth. In this way it takes a tremendous, secret toll of human life in the form of miscarriages and still-births. Worse still, children with syphilis in their blood come into the world to lead a brief, miserable existence. Those that survive go through life with permanent handicaps. Others fill our homes for the dependent and insane.

Are the ravages of Belgian women and children more terrible than this? Wounds on the battlefield do not carry physical poison to the wife and children at home.

Gonorrhoea, the other enemy venereal disease, nearly always attacks the human body by invading the wall and tube passages of the male and female

reproductive organs. Direct blows at the vitality of the race are thus delivered. In both man and woman it may cause, in a variety of ways, sterility, or inability to have children. Transmissible mainly by sexual relations, it is often passed unknowingly to wives. It is as if an enemy should place secret agents especially to attack pregnant women. It causes miscarriages, operations, chronic invalidism among women, whose strength is often of such vital importance for the proper care of children. In man, if uncured, it may lead to stricture, difficulty in urinating, rheumatism, and serious organic troubles. As treacherous as syphilis, it may lie dormant for months and years to spring up again and be passed unknowingly to another person, as for instance, from mother's body to the baby's eyes at birth. The latter is the usual cause of blindness from birth.

THE CASUALTY LIST

We do not see the wounded victims nor do the newspapers display the casualty lists of the dead from these ravagers. But the casualties are there, hidden among the death notices, and many more unrecorded victims, destroyed before birth or dead at birth. The wounded victims fill to the doors our institutions for the insane, the blind, and the helpless. These are real casualties, people dead, bodies wounded, minds destroyed—not heroic victims adorned with gold chevrons, but victims as innocent as the refugees of France and Belgium! *In the homes, in the United States, in hospitals and public institutions in the year 1919, there were more injured and killed victims of these disease than the United States lost during the entire war in France.*

ALLIES OF THE ENEMY

There are, among us, human allies of this enemy of civilization. The quack doctors and the venders of patent medicines who prey upon their victims with "quick cures" that do not "really" cure, the person with one of these diseases who exposes another, the man or woman who directly or indirectly promotes the business of commercialized prostitution—such persons are giving aid and comfort to the foes of the people.

So too he, who whispers to the youth that gonorrhœa is no worse than a bad cold, or spreads the rather misleading statement that there is a sex necessity for unmarried youth that must be gratified by sex intercourse, is an agent of insidious enemy propaganda. And the people who suppress all publication of facts and warnings regarding the enemy disease are unwitting dupes, betraying the cause of healthy manhood and womanhood.

THE PROGRAM OF ATTACK

Against these ravages of the innocent and their allies, the Philippine Health Service has opened a relentless war. This war will be prosecuted by the Public Health authorities for the protection of the people. Years of patient study have developed a means of recognition and effective cure. There will be no peace conferences with the plenipotentiaries of the disease. There is now an organized defensive campaign of cure and a great health offensive of prevention will soon follow. Province by province, city by city, town by town, from Cagayan to Mindanao, a united front of citizens is being built up who will fight the war to a glorious finish. Philippine public opinion will be mobilized against syphilis and gonorrhœa.

MEDICAL MEASURES

The medical profession is a vital part of the fighting force against venereal diseases. Every victim, whether innocent or guilty, is a potential carrier of the poison to the others. All means, therefore, must be used to extend free, prompt, and scientific treatment to all who need it. A prompt cure, moreover, cuts off the disease in its infectious stages, saving others as well as the victim from the severe consequences of a relapse and the final stages.

Clinics, free to venereal patients in the center of population, will extend prompt and accessible treatment to infected or exposed persons. Such clinics are now established in San Lazaro Hospital and the Philippine General Hospital, under the auspices of the Philippine Health Service.

EDUCATION

In every modern war much attention has been paid to the spreading of information about the enemy. Telling the truth about the venereal enemy to the people will help greatly to win the war. Venereal diseases maintain themselves largely on public ignorance. The Philippine Health Service is preparing pamphlets and exhibits through which it will carry the educational offensive to individuals and groups of individuals throughout the Archipelago.

Every man and mature boy in the Philippines must be taught the truth about his sexual nature. He should learn that continence before marriage is entirely compatible with health, and promiscuous sexual intercourse is a constant danger to health because practically all loose women are carriers of venereal diseases. He should learn the very serious consequences of venereal diseases to his own body and the danger of passing them on to his future wife and children.

Women and mature girls should learn of the havoc wrought by gonorrhœa and syphilis.

LAW ENFORCEMENT

The supply of prostitutes must also be reduced, as far as possible, by strict law enforcement. This means the absolute closing of any segregated districts and the effective policing and supervising of streets, cafés, rooming houses, dance halls, automobiles for hire and road-houses, in order that prostitute women will lose their means of getting costumers.

THE COMBINED ATTACK

In the European War every possible agency was brought to bear against the enemy—airplanes, artillery, engineering, hospitals, gas, industry, shipping, propaganda, full man and woman power. They did not stop to argue about the comparative value of ammunition and hospitals. Both were needed and both were used. In this health war, too, we can not profitably stop to argue whether clinics or detention-homes or hospitals are the most effective means of reducing the enemy. We must resort to every available means. It is an emergency. It is war.

Every day that we delay in ignoring the importance of venereal diseases or the proper education of boys and men in sex hygiene, on that day are the syphilis and gonorrhœa germs being carried into another home, to blind the eyes or poison the blood of more babies.

All are needed in the citizen army. Civic organizations and clubs, physicians, teachers, lawyers, ministers, nurses, mayors, police chiefs, prosecutors, judges, councilmen,—are needed in the fight to make the Philippine community safe for the family and future generations.

EDITORIAL NOTES

MONTHLY BULLETIN INSTEAD OF QUARTERLY REPORTS

The *Quarterly Reports of the Philippine Health Service* will be discontinued after the Second Quarter of 1921. In its place will be published *The Monthly Bulletin of the Philippine Health Service*. This will contain, besides the vital statistics by the month, articles pertaining to public health and other items about its conservation.

In publishing this *Bulletin*, the Philippine Health Service aims to reach, in so far as funds permit, the furthest hamlet and nipa shack of the Archipelago, as its apostle and evangelist of the Gospel of Health. By publishing articles couched in as simple a language as possible and also in the various native dialects, it aims to bring home to the last citizen the importance of health as a personal and national asset in all lines of human activity—commercial, industrial, agricultural, and others.

To the press, we extend the hand of a colleague in the publication profession. In our limited sphere, but with a full consciousness of the mission of publicists and writers, we aim to take our humble station by the side of veteran and experienced worthies.

GENERAL STATISTICS

[Unless otherwise stated these statistics are for the month of July, 1921.]

ESTIMATED POPULATION OF THE CITY OF MANILA FOR 1921. BY NATIONALITIES.

Nationality.	Population.
Americans	3,134
Filipinos	267,408
Spaniards	1,955
Other Europeans	1,126
Chinese	17,856
All others	2,186
Total	293,665

BY DISTRICTS.

Health districts.	Population
No. 1, Intramuros	36,108
No. 2, Meisic	100,587
No. 4, Sampaloc	47,662
No. 5, Tondo	77,863
No. 6, Paco	31,445
Total	293,665

BIRTHS REPORTED IN THE CITY OF MANILA.

[Stillbirths not included.]

Nationality.	Male.	Female.	Total.	Annual birth rate per 1,000.
Americans	6	5	11	41.35
Filipinos	495	477	972	42.82
Spaniards	4	5	9	54.23
Other Europeans	4	1	5	52.31
Chinese	21	25	46	30.35
All others	2	8	10	53.89
Total and average	532	521	1,053	42.24

BIRTHS, BY DISTRICTS.

Health districts.	Legitimates.			Illegitimates.			Grand total.	Annual birth rate per 1,000.
	Male.	Female.	Total.	Male.	Female.	Total.		
No. 1, Intramuros	91	78	169	2	3	5	174	56.77
No. 2, Meisic	80	79	159	4	10	14	173	20.26
No. 4, Sampaloc	95	86	181	7	3	10	191	47.21
No. 5, Tondo	167	196	363	19	13	32	395	59.77
No. 6, Paco	63	50	113	4	3	7	120	44.96
Total and average	496	489	985	36	32	68	1,053	42.24

Number of births attended by—

	Living.	Stillbirths.
Physicians	164	14
Midwives	93	1
Families	796	15
Total	1,053	30

**NUMBER OF DEATHS AND DEATH RATE PER 1,000 AMONG RESIDENTS, IN THE CITY
OF MANILA, BY NATIONALITIES.**

[Stillbirths not included.]

Nationality.	Male.	Female.	Total.	Annual deathrate per 1,000.
Americans.....	3		3	11.27
Filipinos.....	284	262	546	24.05
Spaniards.....	1	1	2	12.05
Other Europeans.....	1	2	3	31.39
Chinese.....	18	3	21	13.85
All others.....	2		2	10.77
Total and average.....	309	268	577	23.14

TOTAL DEATHS BY SOCIAL CONDITION, INCLUDING TRANSIENTS.

Social condition.	Male.	Female.
Married.....	117	62
Divorced.....		1
Widowed.....	26	42
Single.....	41	18
Children.....	201	178
Condition not stated.....	2	
Total.....	387	301
Grand total.....	688	

Stillbirths.....	30
Number of deaths with medical attendance.....	307
Number of deaths without medical attendance.....	381

DEATHS BY AGES IN THE CITY OF MANILA.

[Stillbirths not included.]

Age.	Residents.		Transients.		Total.
	Male.	Female.	Male.	Female.	
Under 30 days.....	32	25	1		58
30 days to under 1 year.....	57	52	17	12	138
1 year to under 2 years.....	38	31	7	3	79
2 years to 4 years.....	30	33	2	3	68
5 years to 9 years.....	10	9	1	3	23
10 years to 14 years.....	4	6	2	1	13
15 years to 19 years.....	8	8	2		18
20 years to 29 years.....	27	18	14	4	63
30 years to 39 years.....	23	20	7	2	52
40 years to 49 years.....	27	14	11	4	56
50 years to 59 years.....	24	12	7	1	44
60 years to 69 years.....	7	12	4		23
70 years to 79 years.....	15	11	1		27
80 years to 89 years.....	3	7	2		12
90 years to 99 years.....	1	9			10
100 years and over.....	2	1			3
Age not stated.....	1				1
Total.....	309	268	78	33	688

DEATHS AND DEATH RATE PER 1,000, BY DISTRICTS, INCLUDING TRANSIENTS.

[Stillbirths not included.]

Health districts.	Deaths.	Annual death rate per 1,000.
No. 1, Intramuros.....	85	27.73
No. 2, Meisic.....	141	16.51
No. 4, Sampaloc.....	104	25.70
No. 5, Tondo.....	292	44.18
No. 6, Paco.....	66	24.72
Total.....	688	27.60

X. Malformations.

150. Congenital malformations (stillbirth not included):
(3) Other congenital malformations.....

XI. Diseases of early infancy.

151. Congenital debility, icterus and sclerema:

(2) Congenital debility.

X. Malformations.									
150. Congenital malformations (stillbirth not included):									
(3) Other congenital malformations.....	2								
XI. Diseases of early infancy.									
151. Congenital debility, icterus and sclerema:									
(1) Premature birth (not still-born).....	3	1							
(2) Congenital debility.....	18	15							
152. Other diseases peculiar to early infancy:									
(2) Other causes peculiar to early infancy.....	4								
Total.....	1	31	25					55	51
Grand total.....	1	56						106	3

NUMBER OF DEATHS BY NATIONALITY, SEX, AND AGE, AMONG RESIDENTS—Continued

Causes of death.	1 year to under 2 years.								2 years to under 4 years.															
	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All Others.		Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All Others.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
<i>I. General diseases.</i>																								
1. Typhoid fever.....			1																					
9. Diphtheria and croup.....			1																					
12. Asiatic cholera.....																								
14. Dysentery.....																								
28. Tuberculosis of the lungs.....																								
30. Tuberculous meningitis.....																								
<i>II. Diseases of the nervous system and of the organs of special sense.</i>																								
61. Simple meningitis.....	1		5	6																				
71. Convulsions of infants (under 5 years of age).....																								
<i>III. Diseases of the circulatory system.</i>																								
78. Acute endocarditis.....																								
84. Diseases of the lymphatic system (lymphangitis, etc.).....																								
<i>IV. Diseases of the respiratory system.</i>																								
89. Acute bronchitis.....			13	4																				
90. Chronic bronchitis.....			3	1																				
91. Broncho-pneumonia.....			3	5																				
92. Pneumonia.....			1	1																				
93. Pleurisy.....																								
96. Asthma.....																								

<i>VI. Nonvenereal diseases of the genito-urinary system and anæmia.</i>												
120. Bright's disease.....	1	1										
<i>XIV. Ill-defined diseases.</i>												
189. Cause of death not specified or ill-defined.....										1		
Total.....	9	8			1	1	1			4	6	
Grand total.....	17				1	1				10		

[illegible]

Causes of death.	50 years to 59 years.								60 years to 69 years.															
	Americans.		Philippines.		Spaniards.		Other Europeans.		Chinese.		All Others.		Americans.		Philippines.		Spaniards.		Other Europeans.		Chinese.		All Others.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
<i>I. General diseases.</i>																								
4. Malaria.....																								
14. Dysentery.....																								
28. Tuberculosis of the lungs.....																								
29. Acute military tuberculosis.....																								
31. Abdominal tuberculosis.....																								
46. Cancer and other malignant tumors of other organs and of organs not specified.....																								
50. Diabetes.....																								
<i>II. Diseases of the nervous system and of the organs of special sense.</i>																								
64. Cerebral hemorrhage, apoplexy.....																								
66. Paralysis without specified cause.....																								
<i>III. Diseases of the circulatory system.</i>																								
78. Acute endocarditis.....																								
79. Organic diseases of the heart.....																								
80. Angina pectoris.....																								
81. Diseases of the arteries, atheroma, aneurysm, etc.....																								
82. Embolism and thrombosis.....																								
<i>IV. Diseases of the respiratory system.</i>																								
91. Broncho-pneumonia.....																								
92. Pneumonia.....																								
96. Asthma.....																								

VI. Nongonereal diseases of the genito-urinary system and annexa.

120. Bright's disease.

2

52

XII. Old age.

154. Sensitivity.

2

2

XIII. Affections caused by external causes.

167. Burns (conflagration excepted).

•

•

I

169. Accidental drowning.

I

XIV. IU-defined diseases.

189. Cause of death not specified or ill-defined.....

1

Total.

1

2

Grand total.

48

1

1

1

NUMBER OF DEATHS BY NATIONALITY, SEX, AND AGE, AMONG RESIDENTS—Continued.

Causes of death.	Total.								Grand total.				
	Americans.		Filipinos.		Spaniards.		Other Europeans.			Chinese.		All Others.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.		Male.	Female.	Male.	Female.
<i>I. General diseases.</i>													
1. Typhoid fever.....			9	6									15
4. Malaria.....			3	2									5
9. Diphtheria and croup.....			1	1									2
12. Asiatic cholera.....			1	1									2
14. Dysentery.....			5	10							1		17
18. Erysipelas.....				1									1
20. Purulent infection and septichæmia.....							1						1
23. Rabies.....			1										1
24. Tetanus.....			2	2									4
27. Beriberi.....	1		22	15									37
28. Tuberculosis of the lungs.....			50	45						5			100
29. Acute military tuberculosis.....			1										1
30. Tuberculous meningitis.....			2	3									5
31. Abdominal tuberculosis.....			4	2									6
36. Disseminated tuberculosis.....				1									1
37. Syphilis.....			1	1									2
40. Cancer and other malignant tumors of the stomach, liver, specified.....							1						1
46. Cancer and other malignant tumors of other organs and of organs not specified.....			1	3									4
47. Acute articular rheumatism.....			1	1									2
50. Diabetes.....			2										2
53. Leuchæmia.....				1									1
<i>II. Diseases of the nervous system and of the organs of special sense.</i>													
61. Simple meningitis.....	1		11	10									22
63. Other diseases of the spinal cord.....			1										1
64. Cerebral hæmorrhage, apoplexy.....			2										2
66. Paralysis without specified cause.....			1	4									5
69. Epilepsy.....			1	1									2
71. Convulsions of infants (under 5 years of age).....			2							1			3

III. Diseases of the circulatory system.

78. Acute endocarditis.....	2	2								4
79. Organic diseases of the heart.....	7	1								11
80. Angina pectoris.....	2								3	2
81. Diseases of the arteries, aneurysm, etc.....	1									2
82. Embolism and thrombosis.....	1	1							1	2
84. Diseases of the lymphatic system (lymphangitis, etc.).....	1	1								1

IV. Diseases of the respiratory system.

89. Acute bronchitis.....	29	20								52
90. Chronic bronchitis.....	9	11							1	20
91. Broncho-pneumonia.....	12	16							1	29
92. Pneumonia.....	4	3	1						1	9
98. Pleurisy.....		2								2
94. Pulmonary congestion, pulmonary apoplexy.....		1								1
95. Gangrene of the lungs.....		1							1	1
96. Asthma.....	2	2								4

V. Diseases of the digestive system.

103. Other diseases of the stomach (cancer excepted).....	2	13								2
104. Diarrhoea and enteritis (under 2 years).....	19	7							1	38
105. Diarrhoea and enteritis (2 years and over).....	9								1	17
107. Intestinal parasites.....	2									2
109. Hernias, intestinal obstructions.....		1							1	3
113. Cirrhosis of the liver.....		3								3
115. Other diseases of the liver.....	1									2
116. Other diseases of the liver.....	1									1
117. Simple peritonitis (nonpuerperal).....		1								

VI. Nonsewered diseases of the genito-urinary system and annexa.

119. Acute nephritis.....	4	4								8
120. Bright's disease.....	9	11							2	22
129. Uterine tumor (noncancerous).....		1								1

VII. The puerperal state.

135. Puerperal hemorrhage.....		4								4
137. Puerperal septicæmia.....		1								1
138. Puerperal albuminuria and convulsions.....		2								2

VIII. Diseases of the skin and of the cellular tissue.

142. Gangrene.....	1									1
--------------------	---	--	--	--	--	--	--	--	--	---

Malformations.

150. Congenital malformations (stillbirth not included): (3) Other congenital malformations.....		2								2
---	--	---	--	--	--	--	--	--	--	---

NUMBER OF DEATHS BY NATIONALITY, SEX, AND AGE, AMONG RESIDENTS—Continued.

Causes of death.	Total.										Grand total.		
	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.			All Others.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.		Male.	Female.
<i>XI. Diseases of the early infancy.</i>													
151. Congenital debility, icterus and sclerema:													
(1) Premature birth (not stillborn)			3	1									
(2) Congenital debility			22	21									
152. Other diseases peculiar to early infancy:													
(2) Other causes peculiar to early infancy			4										
<i>XII. Old age.</i>													
154. Senility			7	17									
<i>XIII. Affections caused by external causes.</i>													
155. Suicide by poison								1					
157. Burns (conflagration excepted)				1									
169. Accidental drowning			4										
183. Homicide by cutting or piercing instruments									1				
185. Fractures (cause not specified)			1	1									
186. Other external violence			1										
<i>XIV. Ill-defined diseases.</i>													
189. Cause of death not specified or ill-defined			2	1									
Total	3		284	262	1	1	1	2	18	3			
Grand total	8		546		2		8		21		2		
												577	
												577	

NUMBER OF DEATHS BY NATIONALITY, SEX, AND AGE, AMONG TRANSIENTS.

Causes of death.	Under 30 days.								30 days to under 1 year.															
	Amer- icans.		Filipinos.		Span- iards.		Other Euro- peans.		Chinese.		All Others.		Amer- icans.		Filipinos.		Span- iards.		Other Euro- peans.		Chinese.		All Others.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
<i>I. General diseases.</i>																								
27. Beriberi																								
<i>II. Diseases of the nervous system and of the organs of special sense.</i>																								
61. Simple meningitis																								
<i>IV. Diseases of the respiratory system.</i>																								
89. Acute bronchitis																								
90. Chronic bronchitis																								
91. Broncho-pneumonia																								
92. Pneumonia																								
98. Other diseases of the respiratory system (tuberculosis excepted)																								
<i>V. Diseases of the digestive system.</i>																								
104. Diarrhea and enteritis (under 2 years)																								
<i>XI. Diseases of early infancy.</i>																								
151. Congenital debility, icterus and sclerema: (2) Congenital debility																								
Total																								
Grand total																								

Causes of death.	5 years to 9 years.						10 years to 14 years.					
	Ameri- cans.		Filipinos.		Span- iards.		Other Euro- peans.		Chinese.		All Others.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
<i>I. General diseases.</i>												
14. Dysentery.			1									
20. Purulent infection and septicæmia.												
29. Acute miliary tuberculosis.			1							1		
<i>III. Diseases of the circulatory system.</i>												
79. Organic diseases of the heart.												
<i>IV. Diseases of the respiratory system.</i>												
89. Acute bronchitis.				1						1		
91. Broncho-pneumonia.				1								
92. Pneumonia.										1		
Total.	1		3							2	1	
Grand total.			4							3		

NUMBER OF DEATHS BY NATIONALITY, SEX, AND AGE, AMONG TRANSIENTS—Continued.

Causes of death.	15 years to 19 years.								20 years to 29 years.															
	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All Others.		Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All Others.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
<i>I. General diseases.</i>																								
1. Typhoid fever.....			1												2	1								
4. Malaria.....			1																					
27. Beriberi.....																								
28. Tuberculosis of the lungs.....															3	2						1		
<i>III. Diseases of the circulatory system.</i>																								
79. Organic diseases of the heart.....															2									
<i>VI. Diseases of the respiratory system.</i>																								
92. Pneumonia.....															3									
<i>VI. Nonvenereal diseases of the genitourinary system and annexa.</i>																								
130. Other diseases of the uterus.....																1								
<i>XIII. Affections caused by external causes.</i>																								
169. Accidental drowning.....																								
172. Traumatism by fall.....															13	4						1		
Total.....			2																					
Grand total.....															17							1		

Causes of death.	30 years to 39 years.								40 years to 49 years.															
	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All Others.		Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All Others.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
<i>I. General diseases.</i>																								
14. Dysentery																								
28. Tuberculosis of the lungs			3	1																				
31. Abdominal tuberculosis																								
37. Syphilis																								
<i>IV. Diseases of the respiratory system.</i>																								
88. Diseases of the thyroid body																								
92. Pneumonia																								
96. Asthma																								
<i>V. Diseases of the digestive system.</i>																								
102. Ulcer of the stomach			1																					
1113. Cirrhosis of the liver																								
1115. Other diseases of the liver			1																					
<i>VI. Nonvenereal diseases of the genito-urinary system and annexa.</i>																								
123. Calculi of the urinary passages			1																					
<i>XIII. Affections caused by external causes.</i>																								
157. Suicide by hanging or strangulation																								
Total	6	2											1		5	4			1				1	
Grand total	8												1		9				1				4	

NUMBER OF DEATHS BY NATIONALITY, SEX, AND AGE, AMONG TRANSIENTS—Continued.

Causes of death.	50 years to 59 years.								60 years to 69 years.															
	Amer- icans.		Filipinos.		Span- iards.		Other Euro- peans.		Chinese.		All Others.		Amer- icans.		Filipinos.		Span- iards.		Other Euro- peans.		Chinese.		All Others.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
<i>I. General diseases.</i>																								
14. Dysentery.	1																							
28. Tuberculosis of the lungs.			1																					
30. Tuberculous meningitis			1																					
<i>II. Diseases of the nervous system and of the organs of special sense.</i>																								
64. Cerebral hæmorrhage, apoplexy.																								
<i>IV. Diseases of the respiratory system.</i>																								
90. Chronic bronchitis.																								
91. Broncho-pneumonia.			1																					
92. Pneumonia.																								
<i>V. Diseases of the digestive system.</i>																								
115. Other diseases of the liver.																								
<i>VI. Nonvenereal diseases of the genito-urinary system and annexa.</i>																								
120. Bright's disease.			1																					
<i>XIII. Affections caused by external causes.</i>																								
169. Accidental drowning.																								
Total	1		4	1																				
Grand total.	1		5																					

NUMBER OF DEATHS BY NATIONALITY, SEX, AND AGE, AMONG TRANSIENTS—Continued.

Causes of death.	Total.										Grand total.		
	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.			All Others.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.		Male.	Female.
<i>I. General diseases.</i>													
1. Typhoid fever.....													
4. Malaria.....													
14. Dysentery.....													
20. Purulent infection and septicæmia.....	1												
27. Beriberi.....													
28. Tuberculosis of the lungs.....													
29. Acute miliary tuberculosis.....													
30. Tuberculous meningitis.....													
31. Abdominal tuberculosis.....													
37. Syphilis.....	1												
<i>II. Diseases of the nervous system and of the organs of special sense.</i>													
61. Simple meningitis.....													
64. Cerebral hæmorrhage, apoplexy.....													
<i>III. Diseases of the circulatory system.</i>													
79. Organic diseases of the heart.....													
<i>IV. Diseases of the respiratory system.</i>													
88. Diseases of the thyroid body.....													
89. Acute bronchitis.....													
90. Chronic bronchitis.....													
91. Broncho-pneumonia.....													
92. Pneumonia.....													
96. Asthma.....													
98. Other diseases of the respiratory system (tuberculosis excepted).....													
<i>V. Diseases of the digestive system.</i>													
102. Ulcer of the stomach.....													
104. Diarrhœa and enteritis (under 2 years).....													
105. Diarrhœa and enteritis (2 years and over).....													

INFANT MORTALITY.

Causes of death.	Under 24 hours.	24 hours to under 36 hours.	36 hours to under 48 hours.	48 hours to under 14 days.	14 days to under 1 year.	Total.
Anencephalus. Deformity, congenital.	1					1
Asphyxia, neonatorum.	2					2
Athrepsia.				2		2
Beriberi infantile.				5	38	43
Bronchitis:						
Acute.					29	29
Capillary.				1		1
Chronic.				5		5
Bronchopneumonia.				9		9
Congenital debility.	15	1		3		34
Convulsions of infants.				4		4
Diarrhoea and enteritis.				1		1
Enteritis:						
Acute.					7	7
Catarrhal.				1		1
Chronic.				3		3
Enterocolitis, acute.				2		2
Erysipelas.				1		1
Fever type undetermined.				1		1
Gastroenteritis, acute.				8		8
Gastroenterocolitis, catarrhal, acute.				2		2
Haemorrhage:						
Internal.	1					1
Umbilical.				1		1
Inanition.					1	1
Malarial fever.					2	2
Malnutrition.					1	1
Marasmus.					11	11
Secondary to enterocolitis, chronic.					1	1
Meningitis, acute.					6	6
Monster.	1					1
Nephritis, acute.					2	2
Pleurisy, purulent.					1	1
Pneumonia, lobar.					3	3
Premature birth.	3			1		4
Syphilis, hereditary.					1	1
Tetanus, umbilical.				4		4
Total.	23	1		26	146	196

ANTI-PLAGUE CAMPAIGN.

Number of spring traps set.	40,289
Number of rats caught with spring traps.	6,407
Number of wire traps set.	348
Number of rats caught by wire traps.	1
Number and kind of baits (coconuts).	40,637
Number of poison portions placed.	29,887
Number of rats found poisoned.	555
Number of rats killed by clubs and other weapons.	1,387
Number of rats found dead from other causes.	553
Total number of rats otherwise caught, found dead or killed.	9,003
Total number of rats sent to Laboratory for examination.	9,003
Total number of rats found positive for plague.	0

CHOLERA IN THE PROVINCES.

Province and town.	By towns.		By provinces.		Mortality.
	Cases.	Deaths.	Cases.	Deaths.	
Batangas:					Per ct.
Cuenca.	1	1			
Lipa.	2	1			
San Jose.	1		4	2	50.00
Cavite:					
Tanza.	1	1	1	1	100.00
Cebu:					
Cebu.	4		4		
Union:					
Luna.	1		1		
Total.	10	3	10	3	30.00

REPORT OF THE DISTRIBUTION OF ASSORTED SERA AND VACCINES.

Sera and vaccines.	On hand July 1, 1921.	Received during the month.	Total to be account- ed for.	Distributed during the month.	Remaining at the end of the month.
Antidiphtheric (units).....	815,000		815,000	68,000	747,000
Antidysenteric (ampoules).....	4	185	189	163	26
Antitetanic (units).....	156,500	240,000	396,500	249,000	147,500
Dried vaccine virus (units).....	15,150	40,000	55,150	41,100	14,050
Gonococcus (ampoules).....		150	150	150	
Streptococcus and staphylococcus com- bined (ampoules).....		10	10	10	
Typhoid and paratyphoid (cc.).....	380	6,000	6,380	5,500	880

AMOUNT OF ANTICHOLERA VACCINE DISTRIBUTED BY THE PHILIPPINE HEALTH SERVICE.

Anticholera vaccines.	c. c.
Amount on hand July 1, 1921.....	7,260
Received during the month.....	38,400
Total.....	45,660
Distributed as per itemized statement.....	37,770
Remaining on hand July 31, 1921.....	7,890

AMOUNT OF ANTICHOLERA VACCINE AS DISTRIBUTED BY PROVINCES.

Provinces:	c. c.
Abra.....	420
Albay.....	3,000
Antique.....	300
Bataan.....	720
Batangas.....	2,100
Bohol.....	600
Camarines Norte.....	300
Camarines Sur.....	600
Cavite.....	2,220
Cebu.....	1,320
Ilocos Norte.....	1,020
Ilocos Sur.....	780
Iloilo.....	6,600
Laguna.....	1,380
Leyte.....	600
Marinduque.....	720
Masbate.....	300
Mindoro.....	300
Misamis.....	60
Nueva Ecija.....	600
Nueva Vizcaya.....	600
Oriental Negros.....	420
Pampanga.....	1,260
Pangasinan.....	1,860
Rizal.....	2,700
Romblon.....	600
Tarlac.....	660
Tayabas.....	540
Union.....	1,620
Total.....	34,200
Manila.....	3,570
Grand total.....	37,770

AMOUNT OF VACCINE VIRUS DISTRIBUTED BY THE PHILIPPINE HEALTH SERVICE.

Vaccine virus.	Units.
Amount on hand July 1, 1921.....	71,800
Received during the month.....	200,000
Total.....	271,800
Distributed as per itemized statement.....	200,300
Remaining on hand July 31, 1921.....	71,500

AMOUNT OF VACCINE VIRUS DISTRIBUTED.

Vaccine virus.		Units.
Provinces:		
Abra.....		1,000
Agusan.....		1,000
Albay.....		5,000
Antique.....		1,000
Bataan.....		1,000
Bohol.....		2,400
Bulacan.....		1,000
Cagayan.....		2,000
Camarines Norte.....		500
Camarines Sur.....		6,000
Capiz.....		5,000
Cavite.....		2,000
Cebu.....		12,800
Ilocos Norte.....		2,000
Ilocos Sur.....		4,000
Iloilo.....		8,000
Isabela.....		1,000
Laguna.....		2,350
Leyte.....		10,400
Marinduque.....		2,000
Masbate.....		10,000
Mindoro.....		500
Mountain Province.....		2,800
Nueva Ecija.....		17,000
Nueva Vizcaya.....		300
Oriental Negros.....		4,000
Pampanga.....		5,000
Pangasinan.....		33,000
Rizal.....		5,000
Samar.....		4,000
Sorsogon.....		13,000
Surigao.....		12,000
Tarlac.....		1,000
Tayabas.....		4,000
Union.....		2,000
Zambales.....		600
Zamboanga.....		750
Total.....		185,400
Manila.....		13,700
Other institutions.....		1,200
Total.....		14,900
Grand total.....		200,300

VACCINATIONS IN THE CITY OF MANILA, DURING THE MONTH OF JULY, 1921.

Districts.	Total vaccina- tions.	Total inspec- tions.	Positive.	Negative.
No. 1, Intramuros.....	543	216	165	51
No. 2, Meisic.....	589	525	305	220
No. 4, Sampaloc.....	663	294	200	94
No. 5, Tondo.....	1,176	533	312	221
No. 6, Paco.....	713	222	127	95
Total.....	3,684	1,790	1,109	681

**CONSOLIDATED ANTI-CHOLERA VACCINATIONS OF JULY, IN THE CITY OF
MANILA.**

Districts.	Number of persons vaccinated.								Total vaccination.
	Males.				Females.				
	Double injections.		Single injections.		Double injections.		Single injections.		
	A.	C.	A.	C.	A.	C.	A.	C.	
No. 1, Intramuros			766	4			309		1,079
No. 2, Meisic	376		444	9	374		138	11	1,352
No. 4, Sampaloc			11	9			12	6	38
No. 5, Tondo			95	47			146	47	335
No. 6, Paco			277	159			294	139	869
Total	376		1,593	228	374		899	203	3,673

**CONSOLIDATED ANTI-CHOLERA VACCINATIONS FOR THE MONTH OF JULY RE-
CEIVED IN THIS OFFICE.**

Province.	Week ending second.		Week ending ninth.		Week ending sixteenth.	
	A.	C.	A.	C.	A.	C.
Abra.....			44	15	108	204
Albay.....	550	248	561	204	628	376
Bataan.....					235	111
Bohol.....	17	1			16	1
Cagayan.....	544	267			830	999
Capiz.....			79	34	93	47
Cavite.....	72	116	118	28	138	86
Cebu.....	405	166	144	32	1,017	318
Ilocos Sur.....	310	223	343	41	354	107
Iloilo.....	588	234	446	186		
Laguna.....	283	56	99	37		
La Union.....	386	203	365	112	668	440
Marinduque.....	78	413	102	154		
Mindoro.....	125	44			259	29
Nueva Ecija.....	69	347	126	189	107	216
Oriental Negros.....	279	315				
Pampanga.....	72	114	93	50	214	266
Pangasinan.....	393	488	206	140	143	196
Rizal.....	45	105			100	16
Romblon.....	281	5	205	9		
Sorsogon.....	43	33	66	107		
Tarlac.....	115	1				
Tayabas.....	464		404		304	
Total.....	5,119	3,379	3,401	1,338	5,214	3,412

**CONSOLIDATED ANTI-CHOLERA VACCINATIONS FOR THE MONTH OF JULY
RECEIVED IN THIS OFFICE—Continued.**

Province.	Week ending twenty-third.		Week ending thirtieth.		Total.	
	A.	C.	A.	C.	A.	C.
Abra.....	104	445			256	664
Albay.....					1,739	828
Bataan.....					235	111
Bohol.....					33	2
Cagayan.....					1,374	1,266
Capiz.....					172	81
Cavite.....					328	230
Cebu.....					1,566	516
Ilocos Sur.....	357	103			1,364	474
Iloilo.....					1,034	420
Laguna.....					382	93
La Union.....					1,419	755
Marinduque.....					180	567
Mindoro.....					384	73
Nueva Ecija.....					302	752
Oriental Negros.....	80	78			359	393
Pampanga.....	413	197	122	102	914	729
Pangasinan.....					742	824
Rizal.....					145	121
Romblon.....					486	14
Sorsogon.....					109	140
Tarlac.....					115	1
Tayabas.....					1,172	
Total.....	954	823	122	102	14,810	9,054

NOTE.—A, means adults, C, children.

**CONSOLIDATED ANTI-TYPHOID VACCINATIONS FOR THE MONTH OF JULY
IN THE CITY OF MANILA.**

Districts.	Number of persons vaccinated.				Total vaccination.
	Males.		Females.		
	Adults.	Children.	Adults.	Children.	
No. 1, Intramuros.....	192	17	402	18	629
No. 2, Melsic.....	32	8	28	13	81
No. 4, Sampaloc.....	356	5	70	10	441
No. 5, Tondo.....	14	8	26	17	65
No. 6, Paco.....	67	66	155	310	598
Total.....	661	104	681	368	1,814

**CONSOLIDATED ANTI-TYPHOID VACCINATIONS FOR THE MONTH OF JULY
RECEIVED IN THIS OFFICE.**

Province.	Week ending 2nd.		Week ending 9th.		Week ending 16th.		Week ending 23rd.		Week ending 30th.		Total.	
	A.	C.	A.	C.	A.	C.	A.	C.	A.	C.	A.	C.
Cavite.....	39	50	65	8	13	32					117	90
Total.....	39	50	65	8	13	32					117	90

NOTE.—A, means adults, C, children.

**TYPHOID FEVER REPORTED DURING THE MONTH OF JULY, 1931, CITY OF
MANILA, RESIDENTS ONLY.**

CASES.

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	3		3	1	7		3		1		18
Female.....	5		3	3	4		2		1		18
Dead:											
Male.....	1		1			1	1	4		2	10
Female.....			1	1							2
Total:											
Male.....	4		4	1	7	1	4	4	1	2	28
Female.....	5		4	4	4		2		1		20
Grand total.....	9		8	5	11	1	6	4	2	2	48

DEATHS.

Health districts.											
Sex.	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		Total.
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	1	.....	2	1	1	1	.....	4	1	1	14
Female.....	.....	.....	.....	2	1	.....	1	.....	.....	.....	2
Total.....	1	.....	2	3	2	1	1	4	1	1	16

Total cases reported within the month.....	67
Provincial cases reported in the City.....	19
City cases (residents only).....	48
Total deaths reported within the month.....	19
Deaths from Provincial cases reported in the City of Manila.....	3
Deaths among City cases.....	16
Total confirmed as typhoid fever.....	66
Widal reaction.....	38
Blood culture.....	0
Autopsy.....	0
Clinically possible.....	28
Cases not confirmed as typhoid fever.....	1
Paratyphoid fever, 3 cases.	

**DYSENTERY OCCURRED DURING THE MONTH OF JULY, 1921, CITY OF MANILA,
RESIDENTS ONLY.**

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	5		2				4	1			12
Female.....	6		1			1	3	2			13
Dead:											
Male.....			1	1			1	2			5
Female.....	2			3				6		1	12
Total:											
Male.....	5		3	1			5	3			17
Female.....	8		1	3		1	3	8		1	25
Grand total..	13		4	4		1	8	11		1	42

DEATHS.

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....			1	1			1	2			5
Female.....	1	1		3			2	5		1	13
Total.....	1	1	1	4			3	7		1	18

Total cases reported within the month.....	52
Provincial cases reported in the City.....	10
City cases (residents only).....	42
Total deaths reported within the month.....	21
Deaths from Provincial cases reported in the City.....	3
Deaths among City cases.....	18
Reported as:	
Amoebic dysentery.....	4
Acute dysentery.....	7
Bacillary dysentery.....	12
Chronic dysentery.....	1
Not dysentery.....	3
Dysentery.....	25
Total.....	52

**COMMUNICABLE DISEASES REPORTED IN THE CITY OF MANILA, DURING
THE MONTH OF JULY, 1921.**

Diseases.	Cases.	Death.
Cholera.....	2	2
Diphtheria.....	6	2
Varicella.....	3	
Measles.....	15	

METEOROLOGICAL REPORT FOR MANILA CENTRAL OBSERVATORY DEDUCED FROM HOURLY OBSERVATIONS JULY, 1921.

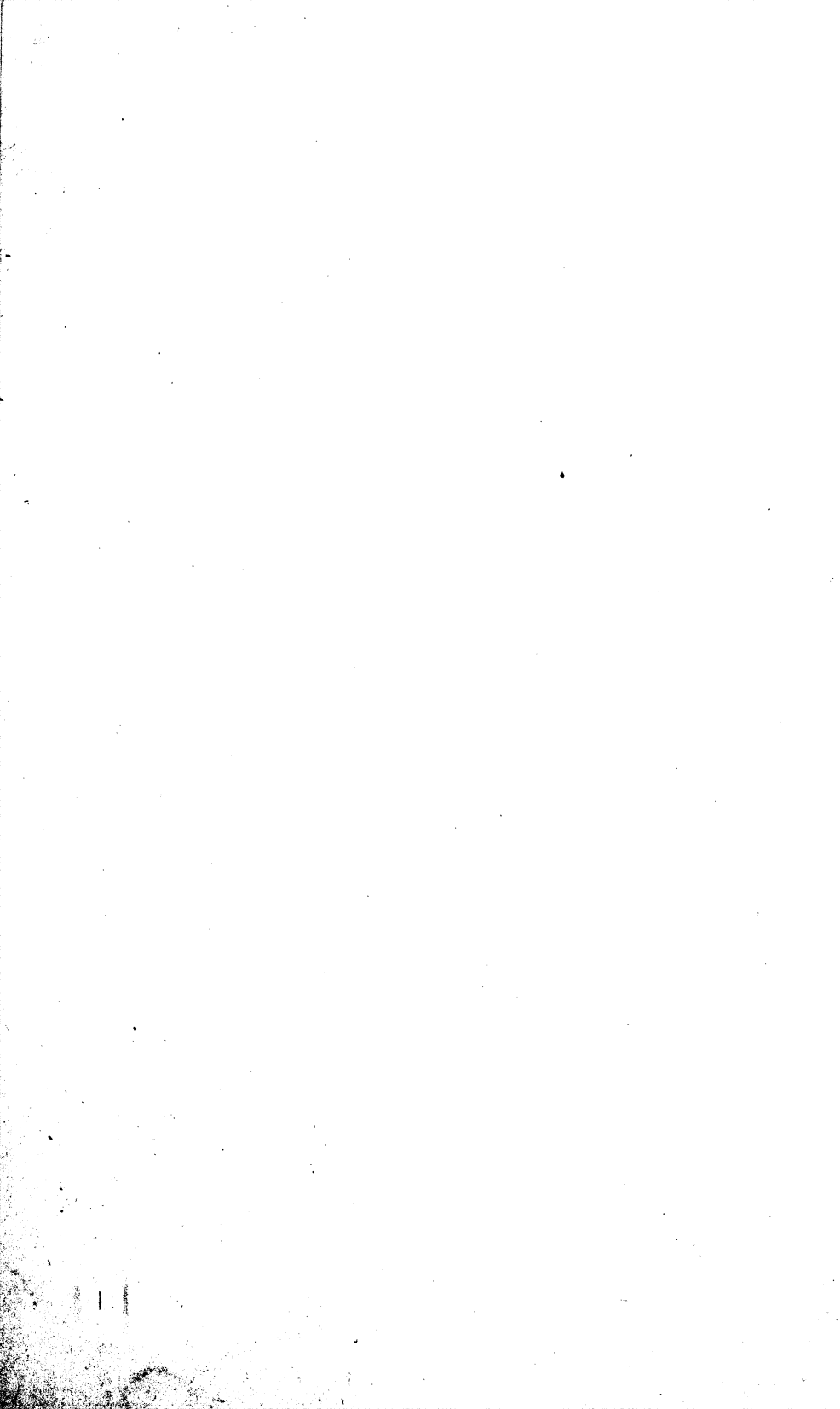
47

Date.	Pressure ¹ mean.	Temperature.					Relative humidity.					
		In shade. ²				Underground.	Mean.	Daily mean maximum.	Day.	Daily mean minimum.	Day.	
		Mean.	Absolute maximum.	Day.	Absolute minimum.							
												°C.	°F.	°C.	°F.
1-10.....	mm. 757.47	26.2	32.9	10	22.0	°C. 29.2	°C. 29.3	86	4	Per cent. 79.7	1	
11-20.....	57.21	27.1	33.2	15	23.1	°C. 29.7	°C. 29.8	81.8	16	75.9	13	
21-31.....	56.50	27.5	33.7	30	23.0	°C. 29.8	°C. 30	82.4	23	76.1	31	
Date.		Wind.			Atmometer: ³ (open air.)		Sunshine.		Rainfall.			
		Prevailing direction.	Velocity.		Total.	Daily maximum.	Total.	Daily maximum.	Day.	Total.	Rainy days.	
			Total.	Daily total maximum.								Day.
1-10.....		SE	2,398	922	4	h. m.	h. m.		2	291.3	8	
11-20.....		E quad.	1,702	234.5	19	31 10	7 00		15	66.2	8	
21-31.....		WSW	3,493.5	863	22	51 25	8 05		30	75.2	8	

¹ Corrected for instrumental error and for temperature and reduced to sea level. Correction to standard gravity. — 1.72 mm.

² These values are taken from instrument mounted in the Observatory Park, 1.6 meters above ground.

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August 1921

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THE GOVERNMENT OF THE PHILIPPINE ISLANDS
DEPARTMENT OF PUBLIC INSTRUCTION

MONTHLY BULLETIN
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PHILIPPINE HEALTH SERVICE

VOL. I

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No. 2

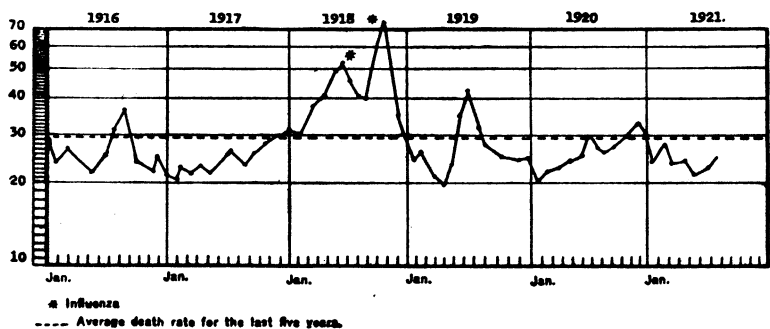
The care of the public health is the first duty of the statesman.—DISRAELI.



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2. "Bacillary Dysentery."
3. Miscellaneous Notes.
4. Vital Statistics for August, 1921.

ANNUAL DEATH RATES BY MONTH, CITY OF MANILA



MANILA
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The success of this publication depends in large part on the coöperation given it by the officers of the Philippine Health Service and prominent members of the profession. These will be called upon by the Committee from time to time to contribute articles dealing with local health problems in whose solution they have taken an active part.

MONTHLY BULLETIN
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PHILIPPINE HEALTH SERVICE

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No. 2

"THE CARE OF THE INSANE"

By **ELIAS DOMINGO, M.D.,**
Philippine Health Service, Manila, P. I.

This article is intended to give the public an idea of how the insane should be taken care of in a modern hospital. The details of the management are not included as space will not warrant giving them. Readers interested on the subject are requested to refer to textbooks written on the subject. The writer has attempted to describe a résumé of all the methods now in use in the United States, and this system may be adopted in the Islands.

Everywhere now in the United States there are hospitals for the reception, care, and treatment of these patients and vast sums of money are annually expended for this purpose.

The modern hospital, which has for its purpose the care and treatment of the mentally ill, has a staff of physicians who are specialists; a staff of nurses who are intelligent and trained in the care of mental disorders; beautiful and costly buildings with bright wards, dining rooms, living rooms, all made more cheerful and attractive by rugs, window hangings, pictures, books, plants, birds, and musical instruments; laboratories for research-clinical, histological, psychological, and X-ray work; departments of electrotherapy, hydrotherapy, mechanotherapy, and occupation therapy; gymnasium, amusement hall, library, sewing rooms, shops, etc.

Here are provided for these patients not only a hospital, but all the features of community life which are essential to the development and maintenance of health, an environment which is especially adapted to their needs, where they are under the direct supervision of those who understand them and appreciate their conditions and know their limitations.

As was stated above, a modern hospital for the insane should have a staff of competent physicians, specialists in the subject, and intelligent trained nurses. Much of the patient's welfare depends upon his reception in the place. Often patients are told that they are going to have a walk, to go to the house of a certain friend, and finally are landed in an asylum. This procedure is unwholesome for it creates a distrust on the part of the patient towards the personnel. Because of lack of insight these patients invariably refuse to be secluded in an institution. We must remember the lasting power of first impressions: let our first thought be to make the patients feel that they have fallen among friends, and just the degree you

cause them to feel that we are here to help them. Thus their confidence in this institution is gained.

After the preliminary recording and identification, procedures which must be done tactfully by the nurse, the patient is conducted to his bed or room, and there explained to him (if he is well enough to receive these) all the existing rules and regulations of the hospital.

The system, which, by far is the most ideal, is that of the Boston Psychopathic Hospital, Boston, Massachusetts. The patients are taken into this Institution, examined thoroughly from all angles, and retained for a certain length of time until a definite diagnosis is made. If the case is a hopeless one from the point of view of improvement, then it is sent to the State Hospital which is situated at Dorchester, Massachusetts, and here patients are given all comforts and commodities as near possible to his home surroundings and welfare. Here the patients are given custodial and remedial care, thru many agencies that will interest the patients. They may be farmers by occupation prior to their admission, and these patients are allowed to go with a bunch of them doing this kind of work. At first they are made to observe; later as the interest of the patients is aroused, then they begin to work. Others may be detailed to other kinds of work as wood-shop, laundry, machine shop, etc. It is of importance that except in these violent and excited cases, these patients should have some kind of diversion and made always busy.

Thus the greater part of the labor is being done by patients, and if this is calculated on a financial basis, we will find that these patients almost become self-supporting.

The number of violent cases in a hospital for the insane is not great, especially if intensive hydrotherapy is given, so that the burden of the expense is only to these kinds of cases; and this is reduced to a minimum, when facilities for their cure are amply provided for.

MANAGEMENT OF EXCITED CASES

The care of those that need restraint is very difficult when no facilities for their isolation are available. Whenever these are amply provided we find that violent and unruly cases become few. When patients become excited or that they are admitted in the manic stage, they should immediately whenever possible be given a hot submerged bath to quieten them; and usually after one or two hours submersion, they become quieter and thus, become more manageable for further treatment. This hydrotherapy system should not be a constant treatment. Whenever they are not in the bath tub, they should be placed in bed whenever possible, during the period of acute excitement, isolated in a room where quiet is possible and all sources of sense stimulation are reduced. Unnecessary furniture, articles, and pictures should be removed and visitors excluded, for these patients are so impressionable that the least sound, movement, or change is noticed and immediately calls forth some response.

Special attention should be given to diet, for in all cases of overactivity, nourishment and fluid should be taken in sufficient quantities to make up the depletion. The patient needs much time and perseverance to be fed, and in order to accomplish results we must utilize the factor of distractability by diverting the attention and spoon-feeding the patient. We must use great tact in avoiding answering questions which would lead to discussion by changing the theme of the conversation. Sharp answers, peremptory

commands, discussions and conflicts frequently lead to violent attacks, because the power of inhibition in these patients is so diminished that they may do the first thing which comes into mind without considering the consequences. It is usually far better not to try to repress or limit the activity but direct it. Often it has been observed that if a patient is taken out to another locality for a walk during his excitement we can far better accomplish something by quitening down rather than restraining his activities. Not infrequently if a patient is found excited pacing the ward back and forth, the patient may be given a book with pictures, and he usually sits down and looks over them, or a lively tune on the phonograph may be played and the patient feel appealed by the compass of the music by gesturing or dancing or singing; then by gradually substituting a slower or quieter record until the excitement is finally controlled and reduced in this manner. In carrying out the foregoing methods we must have trained nurses who are willing to do the work and who have enough patience in them to withstand the strain of the work. Tact and equanimity are two qualities that a nurse should possess in handling excited cases, because each patient must be regarded as an individual person who may have idiosyncrasies and peculiarities which must be considered and recognized.

Whenever it becomes necessary to carry out forcibly orders for treatment or to restrain the activity, it is wise to get as much help as possible, because often just by the sight of a number of attendants, the patient goes down to an easy submission. It is necessary that to the patient should be explained what will be done and get his coöperation by persuasion; but if this fails, use as much gentleness and kindness as possible to carry out the order. It is usually better to be definite in one's action and better not to change or yield to the patient, because every inconsistency, vacillation or weakness will be encountered in future occurrences.

During an episode of excitement, if it is necessary to hold the patient, grasp him by the forearm and not by the hands, for the patient may carry his arm into his mouth and bite the hands of the nurse, and one must always approach the patient from behind because he may kick if approached in front.

REFUSAL OF FOOD

There are other problems that confront the practical psychiatrist of an insane department, where there are patients who refuse to take food because they believe that the food is poisoned, so these people we need to feed by the tube. There are two routes for this, the nasal and the oral. Tube-feeding by the mouth is the less painful and less dangerous for the patient as well as the more convenient for the physician.

Tube-feeding thru the nasal passages presents several inconveniences: (1) it is rather painful, (2) it often irritates the mucous membrane of the nose and produces inflammation, and (3) the small size of the tube renders its penetration to the larynx much easier, and does not allow the use of any food, except in perfectly liquid form.

The introduction of the tube in both ways is an easy problem except for the disadvantage enumerated above, and only one precaution must be observed and that is to ascertain that this tube is not in the trachea. In order to do this, one must apply his ears close to the funnel and ascertain the gurgling of water: if the water runs freely, the tube is in place and is not obstructed. Otherwise, the tube must be withdrawn and cleaned and the operation repeated.

CARE OF SUICIDAL PATIENTS

All insane are potentially suicidal, and the attendants must take every precaution to safeguard them from possible self-injury and destruction. The patients must be under close observation, and at no time can they safely be kept alone. While eating, dressing, bathing, at toilet, awake or sleeping, they must not be out of direct view. There are patients complain that they are sad, and that they or their families are better off if they are dead. There are others who never divulge their thoughts of self-destruction and not infrequently the most careful watch of a nurse or attendant is baffled and suicide is committed. The vigilance of the attendants is never to be relaxed for one moment throughout the day or night until the case is declared to warrant more freedom and privileges.

CARE OF SPECIAL MEDICAL CASES

The insane are subject to infectious and contagious and to general diseases as well as the sane. The care necessary to prevent the spread of contagion is even greater than when nursing the sane, and for this purpose a building especially constructed to care for dangerous communicable diseases. Prompt and effectual isolation is necessary. If there is no appropriate building for these cases, they should be isolated in a room in the ward, and all kinds of furniture removed. The precautions in a sick room of a contagious case should be thoroughly observed. The treatment of any medical case should not vary much from the ordinary medical attention in practice with the sane. Certain peculiarities may be met, but these may be remedied according to the general principles of the care of the insane.

STAFF CONFERENCES

If the staff of a modern hospital is large enough, conferences upon the cases should be encouraged for the interchange of ideas and opinion regarding the cases. The physician in charge of a case will present the patient with complete clinical and laboratory data, and an attempt at a diagnosis is given; but when doubts exist any member may question the diagnosis for a better understanding. If the patient is not violent or furious, this is presented before the staff, and those present satisfy themselves with the diagnosis by questioning the patients.

It is more important in the presentation of the case when the patient is ready to receive parole or discharge, because the responsibility does not only lie in the physician in charge but in the whole staff.

When a patient dies and an autopsy is performed, this is presented by the physician and the pathologist and a correlation of the clinical and anatomical data is made and the various symptoms explained as far as possible by the pathological findings. Much may be said as to the benefits derived from conferences, as is customary in almost all State hospitals of the United States that was visited by the writer.

PSYCHOTHERAPY

Psychotherapy is the use of psychic factors in the treatment of diseases. An essential element of psychotherapy is suggestion. Its successful practice is dependent on the nature of the disease, the attitude of the patients, and the personality of the physician.

Psychonuroses are more amenable to psychic treatment while the graver psychoses are less readily influenced.

The technique of psychotherapy varies according to individual peculiarities, but the essential point in its application is confidence in the physician, and Sir William Osler said that the success of treatment depends upon the confidence of the patient in his physician and his faith in his methods of treatment.

The subject of psychotherapy is of too great a magnitude to be given full discussion here. A special system of psychotherapy has developed in recent years out of the labors of Friend and his pupils.

PAROLE AND DISCHARGE AFTER CARE

A patient who shows no dangerous or troublesome tendencies, who we might say was able to adjust himself properly to his environment may be sent out on parole. This system is in vogue in most modern institutions for the insane in the United States. The patient is allowed to stay with responsible members of his family for varying length of time, depending upon the form of his mental troubles. This is the best method which affords a fairer and more trustworthy and practical means of judging a patient's ability to get along outside of an institution. If after a reasonable length of time the patient was found free from any recurrence of the disease, then the case may be discharged, but the function of the Institution should not cease here. It must follow the cases and, if necessary, seek employment or provide means of livelihood for the patient and his family thru some employment agencies.

Nowadays, the problem of after-care with a view to the prevention of recurrences is being met with in most hospitals in the States thru out-patient clinics and social service departments. In recent years this work has been extended thru most of the hospitals for the insane, and a good example of it is the Social Service Department of the Boston Psychopathic Hospital.

HOSPITALIZATION OF SICK PERSONS

The hospital is quite a modern institution and its presence in any place is always taken as a sign of progress. It means the awakening of the people to live and coöperate in the right ways of living for which the civilized people are different from others.

Wherever the hospital is established, the morbidity and mortality of disease in the place decreases and the health of the community improves.

It is because the hospital gives the proper care and treatment to the sick and at the same time prevents the spread of contagious disease. As a place for the care and treatment of sick persons, it is almost the ideal place especially for the poor who can not afford to pay the services of a doctor or of a nurse. The hospital is provided with all the modern instruments and apparatus which the medical world nowadays considers essential and in some cases absolutely necessary for the proper diagnosis and treatment of disease. Early diagnosis and proper treatment of the patient doubles his chance of recovery while late diagnosis and improper treatment and care are frequently responsible for the loss of lives which otherwise should have been saved. Why then hesitate to enter the hospital when you are ill?

Everyone believes in the importance of the hospital to the community but still only few persons will enter the hospital unless they are dangerously ill and when the harm done to themselves and to their relatives and friends are no longer within the reach of medical science to save them.

By going to the hospital as early as possible when you are taken ill with such dreadful diseases as dysentery, typhoid fever, cholera, influenza, etc., you are not only giving yourself a better chance to recover but you are at the same time freeing your relatives, friends, and neighbors from the danger of possible infection.

The doctors and nurses in the hospital have had training in the proper care of sick persons and possess many years of experience in the practice of the profession which cannot be obtained on short order.

At your home no matter how intelligent and willing the members of the family, it is almost next to impossible to instruct them at a moment's notice in the proper care of sick persons and the science of hygiene and prevention of the spread of disease because this takes time. It is of common knowledge that any person that leaves the hospital carries with him the knowledge and experience again during his stay in the institution and it is but natural that when he goes out to live with his people he practices the same, and in this way this knowledge of hygiene and proper care of sick persons spreads to all the masses of the people.

It is the common experience among all the hospitals to have very few patients during the first years of their existence and later to be overcrowded and frequently forced to close their doors to many sick persons for lack of accommodation. This is due to the educational influence of the hospital on the people which made them realize the importance of hospitalization.

Let us therefore keep this motto in mind for everybody's welfare: "Enter the hospital when we are ill as early as possible and whenever we can, to assure ourselves of the best treatment and care and to free our relatives and friends from the danger of possible infection."

BACILLARY DYSENTERY

[Abstracts]

Dysentery refers to a symptom complex of small frequent mucous stools or muco-blood stools accompanied with intestinal gripping.

SYMPTOMS

Bacillary dysentery usually runs an acute course rarely relapsing and but occasionally going on to chronic condition. The onset is usually started with malaise, abdominal pain, and diarrhea soon followed by the characteristic dysenteric stools and pains. There is usually loss of appetite and nausea, and moderate fever. Later on the stools in moderate cases number up to thirty a day, and in serious cases may reach up to one hundred. Amoebic dysentery generally runs a chronic course with periods of alternating improvement and recurrence. Onset is very insidious and the patient often gives a history of three or more muddy-colored stools a day with tenderness in the region of the caecum. Fever is absent. The patient suffers from progressive loss of weight with anemia.

COMPLICATIONS

In amoebic dysentery the most common complication is liver abscess. In bacillary dysentery mono-arthritis and poly-arthritis have been reported as complications.

ETIOLOGY

Bacillary dysentery is caused by the bacillus dysenteriae of which there are several strains. The most toxic strains are the Shiga strains followed by the Flexner strains. It has been found out that the lesions and the symptoms found in dysentery are due to toxins produced by the bacillus of dysentery.

Endo-toxins and exo-toxins are produced. The lesions in the intestinal tract are due to an endo-toxin while the lesions in the central nervous system are due to an exo-toxin. The exo-toxin is relatively thermolabile and produces an anti-exotoxin serum. It induces in rabbits hemorrhages, necrosis, and vascular infiltration of the gray matter in the upper spinal cord and medulla. The endo-toxin is thermostable, and is not neutralized by the anti-endotoxic serum. It produces edema, hemorrhage, necrosis, and ulcerations in the intestinal tract especially the large intestines.

TREATMENT AND PROPHYLAXIS

The serum treatment is the best treatment for bacillary dysentery. The serum as a rule is injected subcutaneously but may be injected intravenously when indicated in very severe cases. The dose varies from 10 c. c. for a young child to 20 c. c. for an adult, but in severe cases 50 to 100 c. c. may be given. In case of ordinary severity, a single subcutaneous dose may be followed by such marked alleviation as not to call for repeti-

tion. In severe cases the dose may be repeated in from 12 to 24 hours and again in 48 hours.

Usually within 24 hours the tenesmus and colic disappear and the stools markedly reduced in number. From two to five days the stools generally return to normal. Acute bacillary dysentery is especially subject to serum treatment. But cases in their second and third week may still be favorably influenced. In connection with the administration of serum, symptoms due to serum disease may follow injections but precautions should be taken to avoid the discomfort of a serum reaction to the patient.

Serum can also be used as a prophylactic but by injecting subcutaneously about 5 c. c. for persons that have been exposed to dysentery infection.

Favorable reports have been made on the treatment of bacillary dysentery by means of a mixed polyvalent vaccine. Kauntze using it in East Africa reported very favorable results. He reported a mortality of the dysentery cases of 31.38 per cent among those who were not treated with vaccine; 22.92 per cent among those treated with small doses of vaccine; and 19.16 per cent among those treated with large doses of vaccine. The return of effectives to duty during the pre-vaccine days was only 21.32 per cent. With vaccination the effectives return to duty reached up to 75 per cent.

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MISCELLANEOUS NOTES

VACANCIES

Three positions as presidents of sanitary divisions in the Province of Camarines Sur are still vacant. Altho graduate physicians are preferred, male nurses with satisfactory qualifications and experience along sanitary lines are eligible. The entrance salary is 60 to 70 pesos a month. Applicants should apply at the Office of the Director, Philippine Health Service.

One nurse is needed with a salary of ₱900 per annum, plus 15 per cent bonus and traveling expenses in the Health District of Nueva Ecija. The station will be at Cabanatuan and her duty will be to attend the provincial dispensary and to travel to the different municipalities of the province to give lectures on hygiene and sanitation.

The provincial hospital at Naga, Camarines, needs a graduate nurse to be given a compensation of ₱720 per annum with subsistence and quarters.

ASSIGNMENTS

District Nurse Patricia Novero, of the District Nursing Division, and Nurse Rosario Maravilla, of the San Lazaro Hospital, have been directed to report to the Commanding Officer, Camp Stotsenburg, Pampanga, for duty there for one week beginning August 1, 1921.

Nurse Nieves Vergara, of the San Lazaro Hospital, has been directed to assume the duties of District Nurse Patricia Novero during the latter's assignment at Camp Stotsenburg.

Sanitary Inspector Filemon Gana has been relieved from duty at Health Station No. 2, Meisic, and directed to report for duty in the Office of Sanitary Engineering, Philippine Health Service, effective August 8, 1921.

Assistant Surgeon Pio Lauengco is relieved from duty at the Office of the District Health Officer of the Sixth Health District, San Fernando, La Union, and directed to proceed by the first available transportation to Bangued, Abra, where he is assigned as District Health Officer of the Fifth Health District with headquarters in Bangued.

Surgeon Francisco Velez, upon being relieved by Assistant Surgeon Pio Lauengco, is directed to proceed to Naga, Camarines Sur, to take charge as District Health Officer of the Twenty-fifth Health District with headquarters in Naga.

Senior Surgeon Adolfo Aldaba, upon being relieved by Surgeon Francisco Velez, is directed to proceed by the first available transportation to Tagbilaran, Bohol, to take charge as District Health Officer of the Thirty-eighth Health District with headquarters in Tagbilaran.

Senior Medical Inspector Manuel M. Aycardo, upon being relieved by Senior Surgeon Adolfo Aldaba, is directed to proceed by the first available transportation to Cebu to take charge as District Health Officer of the Thirty-fifth District with headquarters in Cebu, Cebu.

Dr. Virgilio Gonzales, Acting District Health Officer of the Thirty-fifth Health District upon, being relieved by Senior Medical Inspector

Manuel Ma. Aycardo, will take charge of his former position as President of the First Sanitary Division in the Thirty-fifth Health District.

District Nurses Vicenta Castro and Macaria Caranto have been relieved from duty at the Office of District Nursing and directed to proceed to Lingayen, Pangasinan, and to report for duty upon their arrival there to the District Health Officer in connection with the suppression of *ulcus tropicum* rampant in that district.

The District Health Officer of the Thirty-third Health District, having been granted permission to reside in Jaro, has been ordered to attend to his office in Iloilo, Iloilo, the same as if he were residing in the provincial capital and provided further that no traveling expenses shall be charged by the District Health Officer from the municipality of Iloilo and viceversa.

THE HEALTHMOBILE

THE HEALTHMOBILE AT MALABON

In a letter received at this Office, Mrs. Elisa E. Cayco, Principal, Malabon Elementary School, requests the service of the Healthmobile for the evening of September 30, Arbor Day. The show will be considered one of the numbers of the program to be given on that occasion.

Medical Inspector Jose Raymundo will be designated to take charge of the Healthmobile Exhibition, and, as usual, topics of sanitary interest, illustrated with lantern slides, will be discussed.

MISCELLANEOUS

FILLING IN LOWLANDS WITH THE CITY GARBAGE

If one should look upon a contour map of the city of Manila, he would be surprised to learn that a large part of the city is still below tide level. This condition has been aggravated in times past by converting large tracts of unoccupied lands into zacate (forage grass) fields, rice-paddies, and fish ponds. The urbanization of the city with its growing population demanded a larger area for building purposes and on this account these lands acquired increased value and importance and their continued use as forage fields, rice-paddies, or fish ponds as no longer profitable. They were therefore abandoned as such and converted into residential sections. The problem has arisen as to how these lowlands can be made safe to the city's inhabitants. They are a continual source of malaria-bearing mosquitoes. Oiling is at best a temporary measure. Filling in these lowlands is the final *desideratum*. Large areas have already been filled in with the city garbage and from them sprang up pretty play-grounds, large school-houses, and commodious residences. Not only this, but that the health of the city's inhabitants was improved thereby. The mortality from malaria in Manila has been reduced from 352 deaths in 1902 to 83 in 1920, of whom only 67 were permanent residents of the city. These filling-ins have been authorized by the Philippine Health Service upon condition that certain requisites which would render the garbage innocuous should be fulfilled, such as the disinfection of each cartload of garbage upon depositing in the ground, and covering the same with either sand or fresh earth to a depth of about 20 centimeters. Because of the fact that certain residents in the neighborhood where this garbage is deposited are complaining as regards the odor emanating from it, it has been ordered that a thin cap of fresh quick lime be deposited upon the garbage to serve as a deodorant. If a road-roller is now passed over the heap, it will not only reduce the volume

of the material, but will also prevent the ingress of flies into the crevices and the development of their larvæ into adult insects and limit to the minimum the emanation of noxious gasses and will not serve as tempting bites to scavenging animals.

TROPICAL ULCERS AMONG SCHOOL CHILDREN IN PANGASINAN

Reports of certain ulcers being prevalent among the school children of several towns in Pangasinan having been received at the Central Office, Senior Surgeon Manuel V. Arguelles was detailed to make a thorough study of the cases and report thereon.

In Dagupan four typical cases of the so-called tropical ulcer were found among the pupils of the Intermediate School. The smears showed numerous *staphylococci*, in two of which striated rods of varying length, were found. In Alaminos, of a total of 814 pupils, 55 were found to be affected with these ulcers, of varying degrees of seriousness. In the barrio of Magtaking, 75 cases were found out of a total of 171 pupils. The towns of Lingayen, Binmaley, and Labrador are similarly infected. The disease appears to confine itself to school children.

Adequate measures to stop the ravages of the disease have been taken by Acting District Health Officer Montemayor, and at the time of Senior Surgeon Arguelles' inspection no new cases were discovered. Among the many antiseptics tried, chromic acid has given the best results. A one per cent solution of anti-typhoid vaccine has been recommended for the possible action of the protein on the lesions.

A female nurse has been stationed in the barrio of Magtaking, Alaminos, to look after the individual cases. The exclusion of the affected children from school is not deemed necessary, but separate benches are provided for those with active lesions.

The ulcer appears to be an entirely new disease, unknown in the province and without even a name in the local dialect.

EXCHANGE OF PUBLICATIONS WITH LEYDEN UNIVERSITY

Professor Flu of the Institute of Tropical Medicine and Hygiene, Leyden, in a letter to the Director of Health, proposes the exchange of publications with the Philippine health Service. The institute publishes a journal which is devoted to the publication of original articles on microbiology, tropical medicine and hygiene, parasitology and infectious diseases. This journal has hitherto been published in the Dutch language, but in the future contributions in foreign languages will be accepted for publication. Moreover, original articles written in Dutch will be translated into English, French, and German. As may be inferred, the foregoing publication is a very important one inasmuch as the experience of the Dutch along public health activities in the Dutch East Indies will be reflected upon its pages for the benefit of their neighbors in the Far East and will also go a long way in the furtherance of preventive medicine in this latitude.

A VALUABLE OPINION

In a letter recently received, Professor P. C. Flu of the University of Leyden, Holland, requests that their library be presented with copies of our publication, and in passing, emits the following opinion:

"Your scientific publications are of much value and are indispensable for students and doctors who are being trained as hygienists and surgeons for service in the Tropics."

ONE MORE CASE OF LEPROSY DECLARED CLEAN

At the meeting of the Committee on Diagnosis of Leprosy at the San Lazaro Hospital held Friday afternoon, August 12, 1921, one more case of leprosy has been declared clinically and microscopically negative, and has been in consequence, placed under quarantine with other negative lepers for further observation. The Committee on Diagnosis is a different entity from the Committee on Leprosy Investigation which is in charge of the treatment of segregated lepers in the Philippine Islands. This division of the work has been done purposely and in consonance with the usual practice elsewhere, so that the judgment of the diagnostic committee may be as unbiased as possible.

DR. HEISER NOW IN THE ISLANDS

Word has been received to the effect that former Director Victor G. Heiser of the Bureau of Health, has arrived at Zamboanga having joined the Federal Investigating Mission at Sandakan, Borneo. Dr. Heiser is expected in Manila shortly, where he will be an official guest of the Government. As the last Director of Health during the past Republican administration, it is conceded on all sides that he will make the best judge in regard to sanitation during the Democratic régime. Holding no official connection with the Government, it is conceded that his judgment will be unbiased and in one respect decisive as to the progress of sanitation in the Islands. Dr. Heiser is at the present time Director for the East of the Rockefeller Foundation, which has been instrumental in the establishment of a modern medical school at Peking, China. It is expected that Dr. Heiser will attend the Medical Conference to be held shortly at Peking, China, under the auspices of the Peking Union Medical College.

NEW VENEREAL CLINIC AT TONDO

A new clinic for venereal diseases has been established in Health Station No. 5, Tondo. The medical officer in charge of the Station will act as physician in this clinic in addition to his other duties until a physician is especially assigned to this clinic. One or two assistant sanitary inspectors of the station as may be required will be detailed to assist this physician.

The Chief of the San Lazaro Hospital is directed to detail a nurse from the San Lazaro Hospital during such days and such hours as the physician in charge and the Chief of the San Lazaro Hospital may agree upon. Equipment and articles absolutely necessary will be requisitioned immediately. Further requisition for medicines and other expendable supplies will be made monthly. In the interest of economy, only absolutely necessary supplies will be requisitioned.

SCHOOL OF PUBLIC HEALTH TO BE REESTABLISHED

The School of Public Health of the University of the Philippines will be reopened according to our information. The school will be conducted will be conferred upon all candidates who successfully complete the course. upon a modern basis. The degree of Doctor of Public Health or its equivalent will be conferred upon all candidates who successfully complete the course.

GENERAL STATISTICS

[Unless otherwise stated these statistics are for the month of August, 1921.]

ESTIMATED POPULATION OF THE CITY OF MANILA FOR 1921. BY NATIONALITIES.

Nationality.	Population.
Americans.....	3,134
Filipinos.....	267,408
Spaniards.....	1,955
Other Europeans.....	1,126
Chinese.....	17,856
All others.....	2,186
Total.....	293,665

BY DISTRICTS.

Health district.	Population
No. 1, Intramuros.....	36,108
No. 2, Meisic.....	100,587
No. 4, Sampaloc.....	47,662
No. 5, Tondo.....	77,863
No. 6, Paco.....	31,445
Total.....	293,665

BIRTHS REPORTED IN THE CITY OF MANILA.

[Stillbirths not included.]

Nationality.	Male.	Female.	Total.	Annual birth rate per 1,000.
Americans.....	8	10	18	67.66
Filipinos.....	497	482	979	43.13
Spaniards.....	2	2	2	12.05
Other Europeans.....	1	1	1	10.46
Chinese.....	38	27	65	42.88
All others.....	6	8	14	75.45
Total and average.....	552	527	1,079	43.29

BIRTHS, BY DISTRICTS.

Health districts.	Legitimates.			Illegitimates.			Grand total.	Annual birth rate per 1,000.
	Male.	Female.	Total.	Male.	Female.	Total.		
No. 1, Intramuros.....	91	104	195	4	7	11	206	67.21
No. 2, Meisic.....	113	107	220	12	8	20	240	28.11
No. 4, Sampaloc.....	81	87	168	7	4	11	179	44.24
No. 5, Tondo.....	162	136	298	6	10	16	314	47.51
No. 6, Paco.....	71	63	134	5	1	6	140	52.45
Total and average.....	518	497	1,015	34	30	64	1,079	43.29

Number of births attended by physician: living, 303; stillbirths, 21.
 Number of births attended by midwife: living, 130; stillbirths, 1.
 Number of births attended by family: living, 646; stillbirths, 25.

NUMBER OF DEATHS AND DEATH RATE PER 1,000 AMONG RESIDENTS IN THE CITY OF MANILA, BY NATIONALITIES.

[Stillbirths not included.]

Nationality.	Male.	Female.	Total.	Annual death rate per 1,000.
Americans.....	1	1	2	7.51
Filipinos.....	307	309	616	27.14
Spaniards.....	5		5	30.18
Other Europeans.....				
Chinese.....	17	2	19	12.53
All others.....	3	1	4	21.55
Total and average.....	333	313	646	25.91

TOTAL DEATHS BY SOCIAL CONDITION, INCLUDING TRANSIENTS.

Social condition.	Male.	Female.
Married.....	90	83
Divorced.....		
Widowed.....	18	55
Single.....	63	21
Children.....	222	199
Conditions, not stated.....	2	
Total.....	395	358
Grand total.....	753	

Stillbirths.....	47
Number of deaths with medical attendance.....	866
Number of deaths without medical attendance.....	887

DEATHS BY AGES IN THE CITY OF MANILA.

[Stillbirths not included.]

Ages.	Residents.		Transients.		Total.
	Male.	Female.	Male.	Female.	
Under 30 days.....	39	28	1	2	70
30 days to under 1 year.....	75	49	14	9	147
1 year to under 2 years.....	38	38	3	1	80
2 years to 4 years.....	32	49	5	4	90
5 years to 9 years.....	4	11	2	3	20
10 years to 14 years.....	7	5	2	1	15
15 years to 19 years.....	15	9	2	1	27
20 years to 29 years.....	24	24	12	8	68
30 years to 39 years.....	27	29	5	6	67
40 years to 49 years.....	21	15	3	6	45
50 years to 59 years.....	22	14	4	2	42
60 years to 69 years.....	14	13	2	1	30
70 years to 79 years.....	9	8	5		22
80 years to 89 years.....	5	8	1		14
90 years to 99 years.....	1	12		1	14
100 years and over.....					
Age not stated.....		1			1
Total.....	333	313	61	45	752

One (1) Filipino male, age, and permanent residence unknown, not included in this table.

DEATHS AND DEATH RATE PER 1,000, BY DISTRICTS, INCLUDING TRANSIENTS.

[Stillbirths not included.]

Health districts.	Deaths.	Annual death rate per 1,000.
No. 1, Intramuros.....	118	38.50
No. 2, Meisic.....	134	15.69
No. 4, Sampaloc.....	107	26.45
No. 5, Tondo.....	327	49.48
No. 6, Paco.....	67	25.10
Total.....	753	30.21

VI. Nonvenereal diseases of the genito-urinary system and annexa.

1119. Acute nephritis.

XI. Diseases of early infancy.

.151. Congenital debility, icterus and sclerema:

(1) Premature birth (not still-born).....

(2) Congenital debility.....

152. Other diseases peculiar to early infancy:

(1) Injuries at birth (not still-

(2) Other causes peculiar to
born)
early infancy

XIV. Ill-defined diseases.

189. Cause of death not specified or ill-defined.....

Total.

Grandtotal.

[illegible]

NUMBER OF DEATHS BY NATIONALITY, SEX, AND AGE, OCCURRING AMONG RESIDENTS, ETC.—Continued.

Causes of death.	1 year to under 2 years.						2 years to 4 years.					
	Filipinos.		Spaniards.		Other Europeans.		Filipinos.		Spaniards.		Other Europeans.	
	Chinese.		All Others.		Americans.		Chinese.		All Others.		Americans.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
<i>I. General diseases.</i>												
4. Malaria.....	1											
8. Whooping cough.....		1										
9. Diphtheria and croup.....		1										
14. Dysentery.....	2	4										
20. Purulent infection and septicaemia.....		1										
27. Beriberi.....		1										
28. Tuberculosis of the lungs.....		1										
30. Tuberculous meningitis.....		1										
31. Abdominal tuberculosis.....												
34. Tuberculosis of other organs.....												
49. Scurvy.....	1											
<i>II. Diseases of the nervous system and of the organs of special sense.</i>												
61. Simple meningitis.....	3	3										
<i>III. Diseases of the circulatory system.</i>												
78. Acute endocarditis.....	1	1										
79. Organic diseases of the heart.....												
<i>IV. Diseases of the respiratory system.</i>												
89. Acute bronchitis.....	7	3										
90. Chronic bronchitis.....	4	2										
91. Broncho-pneumonia.....	4	5										
92. Pneumonia.....		1										
93. Pleurisy.....		1										

V. Diseases of the digestive system.

104. Diarrhoea and enteritis (under 2 years)..... 12 10
 105. Diarrhoea and enteritis (2 years and over)..... 11 15
 106. Ankylostomiasis..... 1
 107. Intestinal parasitism..... 2
 109. Hernias, intestinal obstructions..... 1

VI. Nongonorrheal diseases of the genito-urinary system and annexa.

119. Acute nephritis..... 1 1
 120. Bright's disease..... 1 1
 VIII. Diseases of the skin and of the cellular tissue.

142. Gangrene..... 1

IX. Diseases of the bones and of the organs of locomotion.

146. Diseases of the bones (tuberculosis excepted)..... 1

XIV. Ill-defined diseases.

189. Cause of death not specified or ill-defined..... 1 2
 Total..... 38 38
 Grand total..... 76
 Grand total..... 1

NUMBER OF DEATHS BY NATIONALITY, SEX, AND AGE, OCCURRING AMONG RESIDENTS, ETC.—Continued.

Causes of death.	5 years to 9 years.								10 years to 14 years.															
	Amer- icans.		Filipinos.		Span- iards.		Other Euro- peans.		Chinese.		All Others.		Amer- icans.		Filipinos.		Span- iards.		Other Euro- peans.		Chinese.		All Others.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
<i>I. General diseases.</i>																								
1. Typhoid fever.....																								
14. Dysentery.....																								
28. Tuberculosis of the lungs.....			1	2																				
30. Tuberculosis meningitis.....			1																					
<i>II. Diseases of the nervous system and of the organs of special sense.</i>																								
61. Simple meningitis.....																								
66. Paralysis without specified cause.....			1																					
<i>III. Diseases of the circulatory system.</i>																								
78. Acute endocarditis.....																								
<i>IV. Diseases of the respiratory system.</i>																								
89. Acute bronchitis.....																								
91. Broncho-pneumonia.....																								
92. Pneumonia.....																								
<i>V. Diseases of the digestive system.</i>																								
105. Diarrhoea and enteritis (2 years and over).....			1																					

NUMBER OF DEATHS BY NATIONALITY, SEX, AND AGE, OCCURRING AMONG RESIDENTS, ETC.—Continued.

Causes of death.	50 years to 59 years.								60 years to 69 years.							
	Filipinos.		Spaniards.		Other Europeans.		Chinese.		All Others.		Filipinos.		Spaniards.		Other Europeans.	
	Americans.		Americans.		Americans.		Americans.		Americans.		Americans.		Americans.		Americans.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
<i>I. General diseases.</i>																
4. Malaria.....				1												
24. Tetanus.....			1													
28. Tuberculosis of the lungs.....			7	7			4				6	4	1			
31. Abdominal tuberculosis.....			1	1								1				
37. Syphilis.....			1													
40. Cancer and other malignant tumors of the stomach, liver.....			1													
41. Cancer and other malignant tumors of the peritoneum, intestines, rectum.....												1				
42. Cancer and other malignant tumors of the female genital organs.....												1				
54. Anæmia, chlorosis.....																
<i>II. Diseases of the nervous system and of the organs of special sense.</i>																
64. Cerebral hæmorrhage, apoplexy.....											1		1			
65. Softening of the brain.....				1												
<i>III. Diseases of the circulatory system.</i>																
78. Acute endocarditis.....			1													
79. Organic diseases of the heart.....			1	1												
80. Angina pectoris.....																
81. Diseases of the arteries, atheroma, aneurysm, etc.....							1									
<i>IV. Diseases of the respiratory system.</i>																
90. Chronic bronchitis.....																
92. Pneumonia.....			1												1	
94. Pulmonary congestion, pulmonary apoplexy.....													1			

*VI. Nonsurgical diseases of the genito-
urinary system and anæmia.*

120. Bright's disease.....

1

XII. Old age.

154. Senility.....

9 22

Total.....

15 28

Grand total.....

43

1

1

Causes of death.	Total.							
	Americans- Male. Female.	Filipinos- Male. Female.	Spaniards- Male. Female.	Other Europeans- Male. Female.	Chinese- Male. Female.	All Others- Male. Female.	Grand total.	
<i>I. General diseases.</i>								
1. Typhoid fever		7					17	
4. Malaria		10					6	
8. Whooping cough		4					2	
9. Diphtheria and croup		1					2	
10. Influenza							1	
14. Dysentery		15					25	
18. Erysipelas		1					2	
20. Purulent infection and septicæmia		1					2	
24. Tetanus		2					4	
27. Beriberi		19					43	
28. Tuberculosis of the lungs		51			1		107	
30. Tuberculous meningitis		4			4		3	
31. Abdominal tuberculosis		1			4		1	
34. Tuberculosis of other organs		1					1	
36. Rickets		1					1	
37. Syphilis		1					1	
40. Cancer and other malignant tumors of the stomach, liver, cancer and other malignant tumors of the peritoneum, intestines, rectum		1					1	
42. Cancer and other malignant tumors of the female genital organs		1					1	
46. Cancer and other malignant tumors of other organs and of organs not- specified		1					1	
49. Scurvy							1	
51. Exophthalmic goitre							1	
54. Anæmia chlorosis							1	
<i>II. Diseases of the nervous system and of the organs of special sense.</i>								
61. Simple meningitis							20	
61a. Cerebro-spinal fever		10			1		4	
64. Cerebral hæmorrhage, apoplexy		2				1	6	
65. Softening of the brain		2					1	
66. Paralysis without specified cause		1					1	
71. Convulsions of infants (under 5 years of age)		2					3	

III. Diseases of the circulatory system.

78. Acute endocarditis.....	3	3							6
79. Organic diseases of the heart.....	5	4							11
80. Angina pectoris.....	1						1		1
81. Diseases of the arteries, atheroma, aneurysm, etc.....	2						1		4

IV. Diseases of the respiratory system.

87. Diseases of the larynx.....		1							1
89. Acute bronchitis.....	21	19							42
90. Chronic bronchitis.....	13	8					1		22
91. Broncho-pneumonia.....	16	18					1		35
92. Pneumonia.....	8	1							9
93. Pleurisy.....	1	5							6
94. Pulmonary congestion, pulmonary apoplexy.....	2								2

V. Diseases of the digestive system.

99. Other diseases of the mouth and annæa.....		1							1
102. Ulcer of the stomach.....	2								2
104. Diarrhea and enteritis (under 2 years).....	25	21							47
105. Diarrhea and enteritis (2 years and over).....	12	15							27
106. Ankylostomiasis.....		1							1
107. Intestinal parasites.....		2							2
108. Appendicitis and typhilitis.....						1			1
109. Hernias, intestinal obstructions.....	3	1							4
113. Cirrhosis of the liver.....	2	1							3
114. Biliary calculi.....	1	1							1
117. Simple peritonitis (nonpuerperal).....		1							1

VI. Nonvenereal diseases of the genito-urinary system and annæa.

119. Acute nephritis.....	3	4							8
120. Bright's disease.....	9	8					1		18
123. Calculi of the urinary passages.....	1	1							2
130. Other diseases of the uterus.....		2							2

VII. The puerperal state.

135. Puerperal hæmorrhage.....		1							1
137. Puerperal septicæmia.....		9							9
138. Puerperal albuminuria and convulsions.....		2						1	3

VIII. Diseases of the skin and of the cellular tissue.

142. Gangrene.....		1							1
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IX. Diseases of the bones and of the organs of locomotion.

146. Diseases of the bones (tuberculosis excepted).....		1							1
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Causes of death.	Total.												Grand total.
	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All Others.		
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
<i>XI. Diseases of the early infancy.</i>													
151. Congenital debility, icterus and sclerema:													10
(1) Premature birth (not stillborn)			5	5									47
(2) Congenital debility			27	19					1				1
152. Other diseases peculiar to early infancy:													2
(1) Injuries at birth (not stillborn)			2	1									1
(2) Other causes peculiar to early infancy													2
<i>XII. Old age.</i>													
154. Senility			9	22									31
<i>XIII. Affections caused by external causes.</i>													
169. Accidental drowning													1
172. Traumatism by fall			2								1		2
175. Traumatism by other crushing (vehicles, railways, landslides, etc.)				1									1
185. Fractures (cause not specified)										1			1
<i>XIV. Ill-defined diseases.</i>													
189. Cause of death not specified or ill-defined			3	5									8
Total	1	1	307	309	5				17	2	3	1	646
Grand total	2		616		5				19		4		646

	Under 30 days.						30 days to under 1 year.					
	Amer- icans.	Filipinos. Male. Female.	Span- iards. Male. Female.	Other Euro- peans. Male. Female.	Chinese. Male. Female.	All Others. Male. Female.	Amer- icans. Male. Female.	Filipinos. Male. Female.	Span- iards. Male. Female.	Other Euro- peans. Male. Female.	Chinese. Male. Female.	All Others. Male. Female.
I. General diseases.												
24. Tetanus.....												
27. Beriberi.....						1		2				
36. Rickets.....								1				
II. Diseases of the nervous system and of the organs of special sense.												
61. Simple meningitis.....								1				
IV. Diseases of the respiratory system.												
89. Acute bronchitis.....								4				
90. Chronic bronchitis.....								1				
91. Broncho-pneumonia.....								2				
V. Diseases of the digestive system.												
104. Diarrhoea and enteritis (under 2 years).....								1				
XI. Diseases of early infancy.												
151. Congenital debility, icterus and sclerema: (1) Premature birth (not still-born) (2) Congenital debility.....		1						2				
152. Other diseases peculiar to early in- fancy: (2) Other causes peculiar to early infancy.....												
Total		1	1			1		14				
Grand total		2			1			23				

NUMBER OF DEATHS BY NATIONALITY, SEX, AND AGE, AMONG TRANSIENTS—Continued.

Causes of death.	15 years to 19 years.								20 years to 29 years.															
	Amer- icans.		Filipinos.		Span- iards.		Other Euro- peans.		Chinese.		All Others.		Amer- icans.		Filipinos.		Span- iards.		Other Euro- peans.		Chinese.		All Others.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
<i>I. General diseases.</i>																								
1. Typhoid fever.....																								
4. Malaria.....			1																					
6. Measles.....																								
14. Dysentery.....																								
20. Purulent infection and septicæmia.....																								
28. Tuberculosis of the lungs.....			1																					
35. Disseminated tuberculosis.....																								
<i>II. Diseases of the nervous system and of the organs of special sense.</i>																								
63. Other diseases of the spinal cord.....																								
<i>III. Diseases of the circulatory system.</i>																								
78. Acute endocarditis.....																								
<i>IV. Diseases of the respiratory system.</i>																								
91. Broncho-pneumonia.....																								
92. Pneumonia.....																								
<i>V. Diseases of the digestive system.</i>																								
109. Hernias, intestinal obstructions.....																								
<i>VI. Nonvenereal diseases of the genito-urinary system and anæmia.</i>																								
120. Bright's disease.....																								

VII. The puerperal state.

137. Puerperal septicæmia.
138. Puerperal albuminuria and convulsions

137. Puerperal septicæmia.
138. Puerperal albuminuria and convulsions.

XIII. Affections caused by external causes.

172. Traumatism by fall.

Total . . .

Grand total.

	1	2	3	Total	Grand total.
172. Traumatism by fall.....	1			1	1
Total.....	11	8		19	1
Grand total.....					

NUMBER OF DEATHS BY NATIONALITY, SEX, AND AGE, AMONG TRANSIENTS—Continued

Causes of death.	30 years to 39 years.								40 years to 49 years.															
	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All Others.		Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All Others.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
<i>I. General diseases.</i>																								
1. Typhoid fever.																								
4. Malaria.																								
14. Dysentery.																								
28. Tuberculosis of the lungs																								
45. Cancer and other malignant tumors of other organs and of organs not specified.																								
<i>II. Diseases of the nervous system and of the organs of special sense.</i>																								
61. Simple meningitis.																								
68. Other forms of mental alienation.																								
<i>III. Diseases of the circulatory system.</i>																								
79. Organic diseases of the heart	1																							
<i>IV. Diseases of the respiratory system.</i>																								
91. Broncho-pneumonia																								
<i>V. Diseases of the digestive system.</i>																								
115. Other diseases of the liver			1																					
<i>VI. Nonvenereal diseases of the genito-urinary system and annexa.</i>																								
24. Diseases of the bladder																								

NUMBER OF DEATHS BY NATIONALITY, SEX, AND AGE, AMONG TRANSIENTS—Continued.

Causes of death.	50 years to 59 years.										60 years to 69 years.													
	Amer- icans.		Filipinos.		Span- iards.		Other Euro- peans.		Chinese.		All Others.		Amer- icans.		Filipinos.		Span- iards.		Other Euro- peans.		Chinese.		All Others.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
<i>I. General diseases.</i>																								
1. Typhoid fever.....																								
14. Dysentery.....			1																					
28. Tuberculosis of the lungs.....			1																					
45. Cancer and other malignant tu- mors of other organs and of or- gans not specified.....				1																				
<i>II. Diseases of the nervous system and of the organs of special sense.</i>																								
64. Cerebral hemorrhage, apoplexy.....	1																							
<i>IV. Diseases of the respiratory system.</i>																								
91. Broncho-pneumonia.....																								
<i>V. Diseases of the digestive system.</i>																								
113. Cirrhosis of the liver.....				1																				
Total.....	1		3	2																				
Grand total.....	1		5																					

NUMBER OF DEATHS BY NATIONALITY, SEX, AND AGE, AMONG TRANSIENTS—Continued.

Causes of death.	Total.										Grand total.		
	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.			All Others.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.		Male.	Female.
<i>I. General diseases.</i>													
1. Typhoid fever.....			3	3			1					7	
4. Malaria.....			2	1								3	
6. Measles.....			1	1								2	
10. Influenza.....												1	
14. Dysentery.....			4	2								6	
20. Purulent infection and septicæmia.....			2	1						1		2	
24. Tetanus.....			1									1	
27. Beriberi.....			3	2								5	
28. Tuberculosis of the lungs.....			7	7								14	
35. Disseminated tuberculosis.....			1								1	1	
36. Rickets.....												1	
45. Cancer and other malignant tumors of other organs and of organs not specified.....			1	1			1					3	
<i>II. Diseases of the nervous system and of the organs of special sense.</i>													
61. Simple meningitis.....			2	2								4	
63. Other diseases of the spinal cord.....			1									1	
64. Cerebral hæmorrhage, apoplexy.....	1											1	
68. Other forms of mental alienation.....				1								1	
<i>III. Diseases of the circulatory system.</i>													
78. Acute endocarditis.....			1									1	
79. Organic diseases of the heart.....	1											1	
<i>IV. Diseases of the respiratory system.</i>													
89. Acute bronchitis.....			5	2								7	
90. Chronic bronchitis.....			1	1								2	
91. Broncho-pneumonia.....			4	3							1	8	
92. Pneumonia.....			1									1	

V. Diseases of the digestive system.

104. Diarrhoea and enteritis (under 2 years)	2	1								3
106. Diarrhoea and enteritis (2 years and over)	3	3								6
109. Hernia, intestinal obstructions		1								1
110. Other diseases of the intestines			1							1
113. Cirrhosis of the liver		1								1
116. Other diseases of the liver	1									1

VI. Nonspecific diseases of the genito-urinary system and annexa.

119. Acute nephritis		1								1
120. Bright's disease		1								3
124. Diseases of the bladder	2									2

VII. The puerperal state.

135. Puerperal hæmorrhage		1								1
137. Puerperal septicæmia		2								2
138. Puerperal albuminuria and convulsions		1								1

XI. Diseases of early infancy.

151. Congenital debility, icterus and sclerema: (1) Premature birth (not stillborn)	1	1								1
(2) Congenital debility	2									3
152. Other diseases peculiar to early infancy: (2) Other causes peculiar to early infancy		1								1

XII. Old age.

154. Senility		1								1
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XIII. Affections caused by external causes.

172. Traumatism by fall	1					1				2
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XIV. Ill-defined diseases.

189. Causes of death not specified or ill-defined		1								1
Total	54	43	1	2	1	1	1	1	1	106
Grand total	2	97	1	3		2		1		106

INFANT MORTALITY.

Causes of death.	Under 24 hours.	24 hours to under 36 hours.	36 hours to under 48 hours.	48 hours to under 14 days.	14 days to under 1 year.	Total.
Abortion.....	1					1
Asphyxia.....	1			1		2
Asphyxia for paralysis of the epiglottis.....					1	1
Athrepsia.....					3	3
Beriberi infantile.....				6	35	41
Bronchitis:						
Acute.....					28	28
Capillary.....					6	6
Chronic.....					7	7
Broncho-pneumonia.....					5	5
Broncho-pneumonia, acute.....					2	2
Calculi biliary.....					1	1
Congenital debility.....	13			16	9	38
Convulsions, infants.....				2	1	3
Diarrhoea and enteritis.....					2	2
Dysentery, acute.....					5	5
Dyspepsia, chronic.....					1	1
Empyema, left.....					1	1
Enteritis:						
Acute.....					11	11
Chronic.....					3	3
Enterocolitis, acute.....					1	1
Erysipelas.....					2	2
Gastroenteritis, acute.....					3	3
Gastroenteritis, chronic.....					1	1
Haemophilia; epistaxis and haemorrhage from the cord.....	1					1
Hernia, intra-abdominal incarcerated. Pe- ritonitis, acute syphilis, congenital.....					1	1
Ileocolitis, pseudomembranous, marasmus.....					1	1
Inanition.....					1	1
Internal haemorrhage (pulmonary).....				1		1
Malformation.....					5	5
Marasmus.....					6	6
Meningitis, acute.....					8	8
Meningitis, cerebral, acute.....					2	2
Meningitis, cerebrospinal, acute.....					1	1
Meningitis, simple.....					1	1
Meningitis, tuberculous.....					1	1
Nephritis, acute.....					1	1
Obstruction intestinal.....					1	1
Pertussis.....					1	1
Prematurity.....	7			2		9
Prolonged labor.....	1					1
Rickets.....					2	2
Syphilis, congenital.....	1					1
Tetanus, umbilical.....				4		4
Total.....	25			32	160	217

ANTI-PLAGUE CAMPAIGN.

Number of spring traps set.....	39,013
Number of rats caught with spring traps.....	6,803
Number of wire traps set.....	342
Number of rats caught by wire traps.....	0
Number and kind of baits (coconuts).....	39,855
Number of poison portions placed.....	29,054
Number of rats found poisoned.....	416
Number of rats killed by clubs and other weapons.....	1,167
Number of rats found dead from other causes.....	594
Total number of rats otherwise caught, found dead or killed.....	8,980
Total number of rats sent to Laboratory for examination.....	8,980
Total number of rats found positive for plague.....	0

CHOLERA IN THE PROVINCES.

Province and town.	By towns.		By provinces.		Mortality.
	Cases.	Deaths.	Cases.	Deaths.	
Cavite:					<i>Per ct.</i>
Tanza.....	1	1	1	1	100.00
Union:					
Bacnotan.....	1		1		
Total.....	2	1	2	1	50.00

REPORT OF THE DISTRIBUTION OF ASSORTED SERA AND VACCINES.

Sera and vaccines.	On hand August 1, 1921.	Received during the month.	Total to be accounted for.	Distributed during the month.	Remaining at the end of the month.
Antidiphtheric (units).....	747,000		747,000		747,000
Antidysenteric (ampoules).....	26	60	86	61	35
Antitetanic (units).....	147,500	160,000	307,500	197,500	110,000
Gonococcus (ampoules).....		120	120	120	
Typhoid and paratyphoid (c. c.).....	880	7,500	8,380	6,550	1,830
Dried vaccine virus (units).....	14,050	40,000	54,050	27,250	26,800

AMOUNT OF ANTI-CHOLERA VACCINE DISTRIBUTED BY THE PHILIPPINE HEALTH SERVICE.

Anti-cholera vaccines.	c. c.
Amount on hand August 1, 1921.....	7,890
Received during the month.....	67,610
Total.....	75,500
Distributed as per itemized statement.....	66,680
Remaining on hand September 1, 1921.....	8,820

AMOUNT OF ANTI-CHOLERA VACCINE DISTRIBUTED.

Provinces:	c. c.
Abra.....	300
Albay.....	6,000
Antique.....	1,260
Bataan.....	600
Batangas.....	4,900
Bulacan.....	3,400
Cavite.....	900
Camarines Sur.....	600
Camarines Norte.....	600
Cebu.....	4,740
Ilocos Norte.....	1,200
Ilocos Sur.....	2,870
Iloilo.....	1,020
Laguna.....	1,020
Leyte.....	600
Masbate.....	1,000
Marinduque.....	300
Misamis.....	960
Mountain Province.....	600
Nueva Ecija.....	1,500
Nueva Vizcaya.....	420
Occidental Negros.....	300
Oriental Negros.....	2,700
Pampanga.....	9,000
Pangasinan.....	6,000
Rizal.....	780
Romblon.....	1,800
Tarlac.....	420
Tayabas.....	600
Union.....	2,870
Total.....	59,260
Manila.....	7,110
Other institutions.....	310
Grand total.....	66,680

AMOUNT OF VACCINE VIRUS DISTRIBUTED BY THE PHILIPPINE HEALTH SERVICE.

Vaccine virus.	Units.
Amount on hand August 1, 1921.....	71,500
Received during the month.....	200,000
Total.....	271,500
Distributed as per itemized statement.....	219,600
Remaining on hand September 1, 1921.....	51,900

AMOUNT OF VACCINE VIRUS DISTRIBUTED.

Vaccine virus.	Units.
Provinces:	
Abra.....	1,000
Agusan.....	1,000
Antique.....	1,000
Bataan.....	1,000
Bohol.....	3,400
Bulacan.....	3,000
Cagayan.....	2,000
Camarines Norte.....	500
Camarines Sur.....	8,000
Capiz.....	5,000
Cavite.....	2,000
Cebu.....	21,000
Ilocos Norte.....	2,500
Ilocos Sur.....	5,000
Iloilo.....	8,000
Isabela.....	1,000
Laguna.....	2,200
Leyte.....	23,400
Masbate.....	2,000
Marinduque.....	2,000
Mindoro.....	1,000
Mountain Province.....	2,900
Nueva Ecija.....	20,000
Nueva Viscaya.....	300
Occidental Negros.....	5,000
Oriental Negros.....	5,000
Pampanga.....	4,000
Pangasinan.....	22,500
Rizal.....	5,000
Samar.....	4,000
Sorsogon.....	15,000
Surigao.....	15,000
Tarlac.....	600
Tayabas.....	2,600
Union.....	2,500
Zambales.....	1,000
Zamboanga.....	1,000
Total.....	202,400
Manila.....	15,900
Other institutions.....	1,300
Total.....	17,200
Grand total.....	219,600

VACCINATIONS IN THE CITY OF MANILA, DURING THE MONTH OF AUGUST, 1921.

Districts.	Total vaccinations.	Total inspections.	Positive.	Negative.
No. 1, Intramuros.....	502	212	191	21
No. 2, Malate.....	1,539	558	449	109
No. 4, Sampaloc.....	681	254	197	57
No. 5, Tondo.....	944	420	326	94
No. 6, Paco.....	423	268	222	46
Total.....	4,089	1,712	1,385	327

**CONSOLIDATED ANTI-CHOLERA VACCINATIONS FOR THE MONTH OF AUGUST IN
THE CITY OF MANILA.**

Districts.	Number of persons vaccinated.								Total vaccina- tion.
	Males.				Females.				
	Double injections.		Single injections.		Double injections.		Single injections.		
	A.	C.	A.	C.	A.	C.	A.	C.	
No. 1, Intramuros.....			1,396	56			952	94	2,498
No. 2, Meisic.....			1,815	20			206	16	2,087
No. 4, Sampaloc.....			5	1			5		11
No. 5, Tondo.....			129	45			144	31	349
No. 6, Paco.....			669	504			647	324	2,144
Total.....			4,014	626			1,954	465	7,059

**CONSOLIDATED ANTI-CHOLERA VACCINATIONS FOR THE MONTH OF AUGUST RE-
CEIVED IN THIS OFFICE.**

Provinces.	Week ending 6th.		Week ending 13th.		Week ending 20th.		Week ending 27th.		Total.	
	A.	C.	A.	C.	A.	C.	A.	C.	A.	C.
Abra.....	20	546		162	8	94			28	802
Albay.....	469	375	607	340	550	301			1,626	1,016
Batangas.....	76	234	32	262			11	98	119	594
Bohol.....			25	1					25	1
Bulacan.....			448	304	96	31	215	123	759	458
Cagayan.....	138	12	311	171					449	183
Cavite.....	322	208			56	81			378	289
Cebu.....			56		138		87	253	281	253
Ilocos Sur.....	245	166	299	190					544	356
Iloilo.....	195	458	136	65	97	218	92	183	520	924
Laguna.....	117	175	175	107	62	57	42	28	396	367
La Union.....	124	5	148	166	313	129			585	360
Marinduque.....			218	182	94	187			812	269
Mindoro.....			8	129					8	129
Oriental Negros.....			222	70	76	147			298	217
Pampanga.....					391	310	402	320	798	630
Pangasinan.....			273	540					278	540
Rizal.....	88	112	41	10					129	122
Sorsogon.....	38	15	38	35	170	107			246	157
Tayabas.....					246	15	336	11	582	26
Total.....	1,832	2,306	3,037	2,684	2,297	1,627	1,185	1,016	8,351	7,638

NOTE: A, means adults; C, children.

**CONSOLIDATED ANTITYPHOID VACCINATIONS FOR THE MONTH OF AUGUST
IN THE CITY OF MANILA.**

Districts.	Number of persons vaccinated.				Total.
	Males.		Females.		
	Adults.	Children.	Adults.	Children.	
No. 1, Intramuros	100	2	12	1	115
No. 2, Meisic	57	15	19	9	100
No. 4, Sampaloc	338	4	72	10	424
No. 5, Tondo	73	24	121	27	245
No. 6, Paco	58	52	184	169	413
Total	626	97	358	216	1,297

**CONSOLIDATED ANTITYPHOID VACCINATIONS FOR THE MONTH OF AUGUST
RECEIVED IN THIS OFFICE.**

Provinces.	Week ending 6th.		Week ending 13th.		Week ending 20th.		Week ending 27th.		Total.	
	A.	C.	A.	C.	A.	C.	A.	C.	A.	C.
Bataan	59	18			12	4			59	18
Cavite	24								36	4
Total	83	18			12	4			95	22

NOTE: A, means adults; C. children.

**TYPHOID FEVER REPORTED DURING THE MONTH OF AUGUST, 1921, CITY OF
MANILA, RESIDENTS ONLY.**

CASES.

		Health districts.										
		No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
Reported.		Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Total.
Living:												
Male.....		4		6	2	4		5	1	3		25
Female.....		1		2	1	1		5	1	1		12
Dead:												
Male.....			1	1	1			3	4			10
Female.....		1		1		1	2	2	1			8
Total:												
Male.....		4	1	7	3	4		8	5	3		35
Female.....		2		3	1	2	2	7	2	1		20
Grand total.....		6	1	10	4	6	2	15	7	4		55

DEATHS.

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	1	1	1	1			3	3	1		11
Female.....		1	1		1	2	3	1			9
Total.....	1	2	2	1	1	2	6	4	1		20

Total cases reported within the month	79
Provincial cases reported in the city of Manila	24
City cases (residents only)	55
Total deaths reported within the month	23
Deaths among provincial cases reported in the city of Manila	3
Deaths among city cases	20
Total confirmed as typhoid fever	73
Widal reaction	13
Blood culture	21
Autopsy	0
Clinically	39
Cases not confirmed as typhoid fever	6
Paratyphoid fever, 2 cases and 1 death.	

**DYSENTERY CASES REPORTED DURING THE MONTH OF AUGUST, 1921, CITY OF
MANILA, RESIDENTS ONLY.**

CASES.

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	5		7		5		4	2	1	1	25
Female.....			1		4		2	1	2	2	12
Dead:											
Male.....	2		3	5	2	1		4	1		18
Female.....	1	3		3		1		2			10
Total:											
Male.....	7		10	5	7	1	4	6	2	1	43
Female.....	1	3	1	3	4	1	2	3	2	2	22
Grand total.....	8	3	11	8	11	2	6	9	4	3	65

DEATHS.

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	2	.....	3	5	1	2	1	1	1	.....	16
Female.....	1	3	.....	3	1	1	.....	2	.....	.....	11
Total.....	3	3	3	8	2	3	1	3	1	.....	27

Total cases reported within the month.....		75
Provincial cases reported in the city.....	10	
City cases (residents only).....	65	
Total deaths reported within the month.....		31
Deaths among provincial cases reported in the city of Manila.....	4	
Deaths among city cases.....	27	
Reported as:		
Amoebic dysentery.....	4	
Acute dysentery.....	19	
Bacillary dysentery.....	12	
Chronic dysentery.....	2	
Dysentery.....	34	
Not dysentery.....	4	
Total.....		75

**CHOLERA CASES REPORTED DURING THE MONTH OF AUGUST, 1921, CITY OF
MANILA, RESIDENTS ONLY.**

CASES.

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....			2		4		3				9
Female.....							1				1
Dead:											
Male.....											
Female.....											
Total:											
Male.....			2		4		3				9
Female.....							1				1
Grand total.....			2		4		4				10

DEATHS.

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male							2				2
Female											
Total							2				2

Total cases reported within the month.....	11
Provincial cases reported in the city of Manila.....	1
City cases (residents only).....	10
Cases confirmed as cholera.....	0
Cases not confirmed (found negative).....	11
Total deaths reported within the month.....	2
Deaths from provincial cases reported in the city of Manila.....	0
Deaths among city cases.....	2
Deaths confirmed as cholera.....	0
Deaths not confirmed.....	2

DIPHTHERIA CASES REPORTED DURING THE MONTH OF AUGUST, 1921, CITY OF MANILA, RESIDENTS ONLY.

CASES.

Health districts.											
Reported.	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		Total.
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male											
Female	1		1		2						4
Dead:											
Male											
Female											
Total:											
Male											
Female	1		1		2						4
Grand total	1		1		2						4

DEATHS.

		Health districts.										
		No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
Sex.		Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Total.
Male												
Female				1		1						2
Total				1		1						2

Total cases reported within the month	4
Provincial cases reported	0
City cases reported	4
City cases confirmed as diphtheria	2
City cases not confirmed	2
Total deaths reported within the month	2
City deaths confirmed	2
City deaths not confirmed	0
Deaths from provincial cases	0

OTHER COMMUNICABLE DISEASES REPORTED IN THE CITY OF MANILA, DURING THE MONTH OF AUGUST, 1921.

Diseases.	Cases.	Deaths.
Smallpox		
Varioloid		
Varicella	1	
Measles	16	2

^a Including 3 provincial cases and 1 foreign case.

^b Provincial cases died in the city.

APR 17 1922

THE GOVERNMENT OF THE PHILIPPINE ISLANDS
DEPARTMENT OF PUBLIC INSTRUCTION

MONTHLY BULLETIN
OF THE
PHILIPPINE HEALTH SERVICE

VOL. I

SEPTEMBER, 1921

No. 3

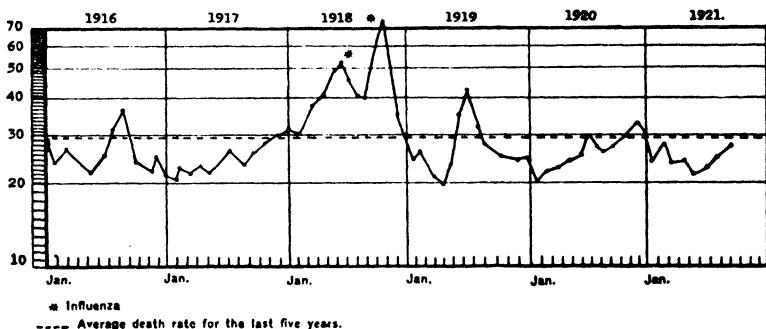
The care of the public health is the first duty of the statesman.—DISRAELI.



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5. Vital Statistics for September, 1921.

ANNUAL DEATH RATES BY MONTH, CITY OF MANILA



MANILA
BUREAU OF PRINTING
1921

184049

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DECALOGUE ON HEALTH AND PREVENTION OF COMMUNICABLE DISEASES

1. Insist on prompt and complete birth registration.
2. Insist on the breast feeding of infants.
3. Procure a balanced diet for you and your family.
4. Provide good pure water.
5. Keep your house and yards in sanitary conditions.
6. Provide a safe waste disposal.
7. Destroy flies, mosquitoes, and other insects' breeding places.
8. Vaccinate against smallpox, typhoid fever and cholera.
9. Do not fail to report every case of communicable disease.
10. Insist on speedy and effective isolation.

MONTHLY BULLETIN
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PHILIPPINE HEALTH SERVICE

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EDITORIAL NOTES

**LABORATORY SERVICE UNDER THE PHILIPPINE
HEALTH SERVICE**

The activities of the Public Health Service in the Philippine Islands have at the present time attained such a degree of development that the establishment of chemical and biological laboratories of its own is considered an imperative necessity. The function of the Philippine Health Service without the aid and coördinated action of a laboratory under its control leaves a gap in the circle of its activities and scope which prevents this institution from rendering the maximum of service within the requirements of modern sanitation and preventive medicine.

In modern sanitation, laboratory work is the meat and fiber, as it were, of the whole work. Field activity, inspection of foods and drugs, diagnoses, quarantine, isolation, disinfection, and the solution of epidemiological problems are associated so intimately with the laboratory findings that the former can only be carried out effectively by utilizing the latter as a foundation for action. The same is the case with hospitals as a similar intimate relationship exists between the clinical wards of the hospitals under the Health Service and the work of the laboratory.

Consequently, any action that has to be taken by the field workers would be better coördinated if there were available the services of a laboratory system whose personnel is under the immediate control of the Director to whom they are responsible. In times when the public weal requires prompt preventive meas-

ures, such an arrangement can cope more quickly and effectively with the problems as they present themselves during epidemics. By appropriate transfers of the personnel from one phase of the work to another, there is the opportunity offered for the preparation of men with all-around training and experience in the technical and administrative phases of public health work. In time, with this close coöperation between field and laboratory workers under one control, there will be trained, by the experience gained thereby, field workers with a working knowledge of the limitations of the laboratory and laboratory workers with a clear perspective of the whole field work.

Were we to look for an example now in actual test, we would be able to cite that of the system of laboratories in New York State. There was established in 1914 a central laboratory in Albany, New York, as a division in the New York State Department of Health under one Director appointed by, and responsible to, the State Commissioner of Health. The duties of this laboratory are to render all the necessary laboratory service to the people of New York State, excluding those of New York City, and to standardize methods and equipment and supervise the various laboratories, government or private, in the whole state. This central laboratory is also undertaking research on questions that deal directly with the public health. Such a system may be made the basis for a similar arrangement in the Philippine Islands. While conditions are here quite different from those in New York, the experience gained in the latter State and similar modern tendencies in all other States may seem to justify a tentative plan in the sense above. Were we to record and study the actual experience of the field workers in the Philippine Health Service now, no doubt the great majority of them would point to a unification of the laboratory and field work under one control. The present arrangement, while valuable for its past and present services, can be improved upon.

The present arrangement, if improved in the foregoing way, need not redound to the detriment of the Bureau of Science. The latter has been as it will and ought to be, the highest institution of research of the Philippine Government, to which special lines of investigation beyond the scope of the intended laboratories of the Philippine Health Service are to be delegated for solution by its present highly technical personnel; and it is but just to say that part of the success achieved by the Philippine Health Service in dealing with sanitary problems was the result of the coöperation of the Bureau of Science.

BRIEF NOTES ON THE NEW TREATMENT OF LEPROSY AS APPROVED BY THE COMMITTEE ON LEPROSY INVESTIGATION, P. H. S.

By SAMUEL TIETZE, M.D.,

(In charge of Leper Department, San Lazaro Hospital, P. H. S., Member,
Committee on Leprosy Investigation, P. H. S.)

The various treatments given to leper patients of the San Lazaro Hospital were:

1. Sodium Gynocardate (India).
2. Sodium Morrhuate.
3. Collobiasis of Chaulmoogra Oil (Dausse).
4. Ethyl Ester of Chaulmoogra Oil (Dean).
5. Mercado mixture.

The various drugs have been experimented with by the Philippine Health Service Leper Committee on new treatments and have given various results. The methods of administration were as follows: Intramuscular, intravenous, intradermic, and combinations of the foregoing.

The dosage varied from 5 drops to 12 c. c. The various reactions following such injections were from a slight macule to a marked toxic dermatitis with gangrene.

The patients that became negative were under treatment on an average of seven (7) months.

1. *Sodium Gynocardate (India)*.—In the treatment with Sodium Gynocardate, the following methods were used. The patient received the injection in a lying-down position, the site of injection carefully cleaned, and the intravenous injection given slowly.

The initial dose was 5 drops given twice a week and gradually increased by 5 drops until the maximum of about 10 c. c. was used. Then the average of 5 c. c. was continued twice a week. This method in some cases was discontinued on account of veins becoming obliterated.

The reaction following this method was not very severe. The patients were not incapacitated after the injection and were able to do their work as before.

2. *Sodium Morrhuate*.—This drug, with the same technique, gave very severe reactions locally at times. The initial dose was 5 minims, gradually increased until about 8 c. c. were given, an average of 5 c. c. was then continued. The local reactions consisted principally of marked blood stasis with subsequent superficial sloughing of the skin. This method also obliterated the veins.

3. *Collobiasis of Chaulmoogra Oil (Dausse)*.—This was given intravenously, beginning with 5 drops and reaching an average of 2 to 3 c. c. No reactions were noticed. This method was at times combined with an infiltration of the local lesions given just under the skin.

Some cases were arrested within a remarkably short time. No veins showed obliteration.

4. *Ethyl Ester of Chaulmoogra Oil (Dean)*.—The Ethyl Ester of Chaulmoogra Oil (Dean) was given intramuscularly beginning with a dose of 1 c. c. and reaching an average of 5 to 6 c. c. given twice a week. Reaction seldom occurred. In such cases, however, the reaction principally consisted of slight fever with an outcrop of apparently new lesions. The duration of this reaction averaged about a week and terminated in a disappearance of the new as well as of the old lesions.

It is interesting to note that those apparently new lesions (reactionary) appearing during the reaction were microscopically negative.

5. *The Mercado Mixture*.—The Mercado Mixture was given intramuscularly beginning with 1 c. c. twice a week, reaching an average of 6 to 7 c. c. The reaction of these cases was frequently very severe, incapacitating the patient for an average period of 2 weeks. The local reaction consisted of an acute inflammatory induration, which sometimes resulted in the breaking down of tissue and abscess formation.

This method is probably the most painful among those enumerated above. The results, however, were very favorable regarding the microscopical and clinical picture.

The foregoing methods given are merely an outline of the work performed during the past year in the experimental treatment with the new drugs. The results have been so favorable that these methods are partially carried out in the Culion Leper Colony at the present time and it is hoped that the number of negatives obtained so far warrant an outlay by the Government of further large appropriations in attempting the cure of leprosy.

MEDICAL INSPECTION OF SCHOOLS IN THE CITY OF MANILA

By FELIPE ARENAS, M. D., *Senior Medical Inspector, P. H. S.*, and JOSÉ M.
RAYMUNDO, M. D., *Medical Inspector, P. H. S.*

Medical inspection of schools is one of the phases of sanitation which so far is yet undeveloped in the Philippines despite its unquestioned importance. Its aim should not be overlooked any longer, as it preserves youth and helps to produce adults who are morally, intellectually, and physically sound, and, consequently, helps to build a sound citizenship. Medical inspection of schools also protects the community from the so-called school infections.

The main objects of medical inspection of schools are: (1) To procure the physical welfare of the students, (2) to detect and exclude or isolate all communicable diseases among students.

Physical welfare of school children.—When the legislators, or the community who is represented by the Legislature, provide free education, they have not yet completely done their duty toward the children. The child has a right to be provided, not only with free education, but physical comfort and other requisites to procure sound manhood. He must have sanitary school buildings, with proper light and ventilation; proper seats and desks; pure water, healthy playgrounds, and sanitary toilet-rooms. Besides guidance in moral and mental training, he requires proper direction to procure and preserve health. Early symptoms of disease and orthopedic defects should be detected in order to apply the proper treatment and avoid the sad consequences of sickly youth and physically defective or disabled manhood. Defective refraction of the eye, or other eye disorders, which may result in complete loss of sight, should be corrected early. Carious teeth should be attended straightway at the beginning; otherwise the ailment will cause unnecessary but avoidable trouble to the child and will subject him to sad delays in his studies. The feeble-minded and other defectives should be singled out and separated from the regular cases and grouped together in a special class. If they are left with the normal students, they will be slow and will serve only as a hindrance to the entire class by taking too much of the time of the teachers. If neglected, they will gain no benefit from the instruction. Children suffering of organic heart lesions must be exempted from active physical exertion. Other defects such as incipient tuberculosis and under nourishment, causes which generally lie in defective home sanitation and hygiene, should be taken up with the parents and proper instruction given. Healthy children assimilate easily any mental food, and are excellent assets for the community.

Detection and exclusion of communicable diseases.—School children in general should be protected against communicable diseases that may be conveyed by anyone of their fellow-students, and the community at large has a right to be protected from any school infection. A school, whenever

any communicable disease occurs within its walls, is a distinct menace to the community. Any child that develops any communicable disease, and we know that during that age communicable diseases are particularly prevalent (diphtheria, septic sore throat, measles, smallpox, varicella) has the ample opportunity, if undetected of mingling and staying in close contact with his fellow-students within the school, especially during recess periods. While in such condition, he can easily transmit his infection to the rest of the school and his companions in their turn may either contract the disease and serve as another factor in spreading the infection to their own household. They may thus be disease-carriers, unawares, of course, or out-and-out patients themselves. The medical supervision of schools, if properly and constantly performed, is the one good way of detecting and checking communicable diseases, and at the same time serving as a dependable barrier against the spread of the infection to the community. There are several factors that can contribute to detect communicable diseases among school children, but in many ways these are unreliable. The parents of the children often fail to recognize early symptoms because of their unfamiliarity with the matter; the family physician always comes late (when the child has had already all the chances to infect his classmates) if called at all; the health officer depends only on reports of parents and private physicians, practically in all cases; and the teacher is generally so engrossed in her task of teaching the children that she relegates the prevention of communicable diseases to the background, if attended at all. So the medical supervisor with the school nurses is the only reliable factor of detection and exclusion. The nurses make the rapid preliminary examinations and exclude all suspects for final examination by the medical officer. All students suffering from communicable diseases are reported to the corresponding health stations and the other defectives are sent to the school clinics.

Actually, in the city of Manila there is an urgent need of an eye, ear, nose, and throat specialist to attend to these defects. The dental clinics should be improved also in such a way that all cases of dental defects would be attended. The dental clinics actually attend only those cases when patients suffer either pain or any serious trouble, but no preventive or prophylactic measure is taken by the dental surgeons in charge of the clinics. This is due to the fact that the dental surgeons are only half-time employees and can not cope with the large number of cases to be attended.

Following is an extract of school inspection in the city of Manila:

From June, 1921, beginning of school-year 1921-1922 to September, 1921, 13,199 students were examined. Of this total, the following diseases were found more predominating.

Dental caries.....	per cent....	58.5
Chronic conjunctivitis.....	do.....	14.6
Tinea	do.....	5.6
Trachoma	do.....	1.7
Scabies	do.....	1.3
Ulcers	do.....	1.0
Anemia	do.....	0.8
Acne	do.....	0.5

VACANCIES

WANTED: A CHEMIST

In connection with the preparation of the drugs used in the treatment of leprosy, the services of an assistant chemist is needed by the Committee on Leprosy Investigation of the Philippine Health Service.

Candidates with the necessary qualifications should interview the chemist of the committee, Dr. G. A. Perkins, at the Bureau of Science on any working day during office hours.

Vacancies exist in the Bayombong Hospital for the position of resident physician and nurse with compensation of ₱1,800 per annum with subsistence and quarters, and ₱720 per annum with subsistence, quarters and laundry, respectively.

For President of Sanitary Division, Gubat, Sorsogon. Salary ₱1,200 per annum with per diems and traveling expenses when out of the station on official duty.

ASSIGNMENTS

District Nurse Juana Penales and Nurse Manuela Sena of the San Lazaro Hospital have been relieved from duty from their respective stations and directed to proceed to Camp Stotsenburg, Pampanga, reporting upon their arrival thereat to the Commanding Officer thereof for duty one week beginning September 5, 1921.

Nurse Remedios V. Alberto, of the San Lazaro Hospital, having reported for duty to this Office, has been assigned to the Office of District Nursing during the assignment of Miss Penales at Camp Stotsenburg.

Dr. Liborio Gomez, member of the Committee on Leprosy Investigation, has been directed, with the approval of the Director of the Bureau of Science, to proceed by the first available transportation to the Culion Leper Colony for inspection. Upon return to Manila he shall make a complete report to the Director of Health relative to the modern treatment of leprosy now being undertaken in the Colony.

Nurses Socorro O. Ordoño and Mauricia C. Molina have been relieved from duty at the San Lazaro Hospital and directed to proceed to Laoag, Ilocos Norte, and to report upon arrival to the District Health Officer thereof for duty in connection with the suppression of certain species of tropical ulcers now prevalent in that province.

Dr. Jose Alberto has been relieved from duty as Chief, Vaccinating Party No. 1, Badian, Cebu, and directed to proceed by the first available transportation to Bayambang, Pangasinan, to take charge of the position of Chief, Vaccinating Party No. 2, relieving Mr. Gabino de Jesus. During the absence of the Chief, Vaccinating Party No. 1, Assistant Sanitary Inspector Filemon Ochoa has been directed to take charge of the office of his party until relieved.

Mr. Gabino de Jesus upon being relieved as Chief, Vaccinating Party No. 2, is directed to proceed by the first available transportation to Badian, Cebu, to take charge of the position of Chief, Vaccinating Party No. 1, relieving Assistant Sanitary Inspector Filemon Ochoa who will resume his former duties.

The travel performed by Dr. Gavino Limkako, Junior Surgeon for the modern leprosy treatment, from Culion to Manila and return, for the purposes of conducting to this city leper inmate Charles E. Brown, has been confirmed and made of record.

Miss Arsenia Infantado has been assigned to duty as nurse in the Bontoc Hospital.

Dr. Teodoro C. Arvizú, who has been assigned temporarily for work in connection with the medical inspection of schools in the south of the Pasig River, has been temporarily assigned for work in connection with the medical inspection of schools in the north side of the Pasig River together with the medical officer in charge of Station No. 2, Meisic.

THE HEALTHMOBILE

Chauffeurs Teodoro Garcia and Eliseo Reyes have been directed to proceed to Sariaya, Tayabas, on the healthmobile, in company with Assistant Sanitary Inspector Benigno Reyes for the purpose of giving lectures on Sanitation and Hygiene.

THE HEALTHMOBILE AT SARIAYA

The healthmobile of the Philippine Health Service, which was sent to Sariaya on the night of September 12, held cinematograph exhibitions in front of the municipal building at about 6.30 p. m. the next day.

Among the films shown was the Children's film which showed nurses taking care of babies. Also the value of vaccination was exhibited. The next evening at about 9 o'clock, the following topics were illustrated:

1. The cleanliness in food and drinking water.
2. The value of disinfectants.
3. The houses and places fitted to live in.
4. That flies ought not be let on foods as they are the ones carrying cholera germs.

MISCELLANEOUS

THE YAWS CLINIC AT PARAÑAQUE

Last Saturday, September 10, the Yaws Clinic at Parañaque was opened to the public. Dr. Perpetuo Gutierrez, who has specialized in skin diseases in the United States, is in charge of the Clinic, with Dr. Hernandez, municipal physician of Parañaque, as assistant. Treatments have been administered to ten children of less than 8 years of age and two adults. The Clinic is opened on Monday afternoon and Thursday morning of each week and all sufferers from the disease, in the neighborhood of Parañaque and Las Piñas, are urged to come to the Clinic for treatment.

Formerly, the towns of Parañaque and Las Piñas are important yaws foci, and very seldom has any member of a family escaped from its ravages in years past; but since the discovery of Dr. Strong, that salvarsan is a specific for the disease and has taken measures for its eradication in conjunction with the health authorities, the disease is becoming more and more rare. If the coöperation of the public is had this time, it is believed that the infection will be completely eradicated from those neighborhoods.

DOCTOR ABAYA, OF IFUGAO, MISSING

Reports from the Mountain Province state that Doctor Abaya, Sub-District Health Officer of Ifugao, left on horseback for Cervantes on an inspection trip. His horse was, however, found alone on one side of Loseng River on the afternoon of Wednesday. Doctor Vinluan, accompanied by many people, went in his search and until yesterday Dr. Abaya had not been found. It is believed that Doctor Abaya was drowned.

The following telegram was sent by the Director of Health to the District Health Officer of Bontoc:

"Wire results search body Doctor Abaya. Send by mail complete report investigation."

Dr. Alcantara, Resident Physician of the Bontoc Hospital, reported that the body of Doctor Abaya was found at 10 o'clock on the morning of the sixteenth. The cadaver was brought to the municipal building of Cervantes that same afternoon. Because of the advanced decomposition of the body, it was not possible to embalm it, and its burial was decided upon without delay.

A report has been received from the district health officer of the Mountain Province giving a narrative statement as to how the accident of Doctor Abaya's death occurred.

Doctor Abaya went to Bontoc from Kayan to obtain some information with reference to the checking up of some property, and from Bontoc he started for Kayan on September 12 early in the morning and slept in Baucó

that night and on Tuesday, September 13, he went to Kiangnan to check up the property with Sanitary Inspector German Astudillo. On the fourteenth Doctor Abaya left Kayan for Cervantes to check up the property in that place, it having rained very hard the previous day. In the afternoon of the said day he left Cervantes for Kayan, Doctor Abaya on horseback and Sanitary Inspector Astudillo on foot. As Sanitary Inspector Astudillo was walking he was left behind some distance and when he arrived at brook "Losong," a distance of about 7 kilometers from Kayan, he found the horse of Doctor Abaya standing alone on a big rock while Doctor Abaya was missing. The place where it is supposed that Doctor Abaya was drowned is only a brook, but it has a strong current when it rains hard. Doctor Abaya used to cross this brook very often and he perfectly well knew the condition of said brook. The brook has a small hollow produced by running water which one should pass in order to cross the brook. It is probable that when Doctor Abaya was crossing the brook the horse stepped in this hollow place causing the horse to stumble and at the same time throwing Dr. Abaya into the brook with the strong current. The body was found 10 kilometers from the place where it was supposed he had been drowned. He left a widow and five children. The funeral was immediately celebrated on account of the decomposition of the body, embalment being impossible.

CHOLERA SITUATION IN NUEVA VIZCAYA

According to a telegram received from the district health officer of Nueva Vizcaya, only one suspected case of cholera was registered in said health district on August 29 and since then no other case has been registered.

With reference to dysentery in Ilocos Norte, the following telegram has been received by the Director of Health, Manila, from the District Inspector of the First Health District of Inspection:

"Dysentery Province Ilocos Norte practically eradicated. Detail report by mail."

THE MAKABUGWAS LODGE DONATES A HOUSE FOR LEPERS

The Makabugwas Lodge at Tacloban, Leyte, has appropriated money for the construction of a new leper house, in view of the fact that the province has no available funds for the repair of the actual leper-houses.

The work on the building has already commenced. It will be of mixed material with separate departments for men and women. It will accommodate 24 persons. Each department will have a separate kitchen and toilet of the Antipolo system.

A letter of thanks has been forwarded to the Makabugwas Lodge for their generous act.

GENERAL STATISTICS

[Unless otherwise stated these statistics are for the month of September, 1921.]

ESTIMATED POPULATION OF THE CITY OF MANILA FOR 1921.

BY NATIONALITIES.

Nationality.	Population.
Americans.....	8,134
Filipinos.....	267,408
Spaniards.....	1,955
Other Europeans.....	1,126
Chinese.....	17,856
All others.....	2,186
Total.....	293,665

BY DISTRICTS.

Health districts.	Population.
No. 1, Intramuros.....	36,108
No. 2, Meisic.....	100,587
No. 4, Sampaloc.....	47,662
No. 5, Tondo.....	77,863
No. 6, Paco.....	81,445
Total.....	293,665

METEOROLOGICAL REPORT FOR MANILA CENTRAL OBSERVATORY DEDUCED FROM HOURLY OBSERVATIONS.

SEPTEMBER, 1921.

Date.	Pressure, mean. ¹	Temperature.						
		In shade. ²					Underground.	
							0.50 m.	
		Mean.	Absolute maxi- mum.	Day.	Absolute mini- mum.	Day.	8 a. m. mean.	2 p. m. mean.
	mm.	°C.	°C.		°C.		°C.	°C.
1-10.....	758.33	26.1	32.4	2	22.9	2,10	28.8	29.0
11-20.....	57.54	27.0	33.8	16	23.1	11	29.1	29.4
21-30.....	58.34	26.4	31.7	24	22.7	27	29.6	29.8

¹ Corrected for instrumental error and for temperature and reduced to sea level. Correction to standard gravity, — 1.72 mm.

² These values are taken from instrument mounted in the Observatory Park, 1.5 meters above ground.

METEOROLOGICAL REPORT FOR MANILA CENTRAL OBSERVATORY
DEDUCED FROM HOURLY OBSERVATIONS—Continued.

Date.	Relative humidity.				
	Mean.	Daily mean maximum.	Day.	Daily mean minimum.	Day.
	Per cent.	Per cent.		Per cent.	
1-10	87.2	93.8	1	88.1	2
11-20	84.5	88.9	14	81.7	17, 19
21-30	85.4	90.5	26	77.8	29

Date.	Prevailing direction.	Wind.			Atmidometer, open air. ²		
		Velocity.			Total.	Daily maximum.	Day.
		Total.	Daily total maximum.	Day.			
		Km.	Km.		mm.	mm.	
1-10	SE	968.5	145	10	16.8	2.8	2
11-20	WSW	2,604.0	471	13	28.7	4.1	20
21-30	SW	1,594.0	290	24	22.5	3.5	24

Date.	Sunshine.			Rainfall.	
	Total.	Daily maximum.	Day.	Total.	Rainy days.
	H. m.	H. m.		mm.	
1-10	24-10	4.30	4	98.9	8
11-20	86-45	10.00	19	49.3	8
21-30	31-20	7.55	24	189.1	8

² These values are taken from instrument mounted in the Observatory Park, 1.5 meters above ground.

BIRTHS REPORTED IN THE CITY OF MANILA.

[Stillbirths not included.]

Nationality.	Male.	Female.	Total.	Annual birth rate per 1,000.
Americans	7	8	10	38.85
Filipinos	497	389	826	37.61
Spaniards	3	2	5	31.14
Other Europeans	3	2	5	54.06
Chinese	27	18	45	30.68
All others	5	3	8	44.56
Total	482	417	899	37.27

BIRTHS, BY DISTRICTS.

Health districts.	Legitimates.			Illegitimates.			Grand total.	Annual birth rate per 1,000.
	Male.	Female.	Total.	Male.	Female.	Total.		
No. 1, Intramuros	94	65	159	9	5	14	173	58.83
No. 2, Malabon	103	92	195	8	9	17	212	25.66
No. 4, Sampaloc	71	72	143	2	5	7	150	38.82
No. 5, Tondo	114	104	218	8	5	13	231	36.12
No. 6, Paco	65	54	119	8	6	14	133	51.49
Total and average	447	387	834	35	30	65	899	37.27

BIRTHS, BY DISTRICTS—Continued.

Number of births attended by—	Living.	Stillbirths.
Physician	202	20
Midwife	89	5
Family	608	23
Total	899	48

NUMBER OF DEATHS AND DEATH RATE PER 1,000 AMONG RESIDENTS, IN THE CITY OF MANILA, BY NATIONALITIES.

[Stillbirths not included.]

Nationality.	Male.	Female.	Total.	Annual death rate per 1,000.
Americans	2	2	2	7.77
Filipinos	346	280	626	23.50
Spaniards	3	2	5	31.14
Other Europeans	25	3	28	19.09
Chinese	1	2	3	16.71
All others				
Total and average	377	287	664	27.53

TOTAL DEATHS BY SOCIAL CONDITION, INCLUDING TRANSIENTS.

Social condition.	Male.	Female.
Married	112	71
Divorced		
Widowed	26	57
Single	72	19
Children	223	191
Condition not stated	3	1
Total	436	339
Grand total	775	

Stillbirths	48
Number of deaths with medical attendance	899
Number of deaths without medical attendance	376

DEATHS BY AGES IN THE CITY OF MANILA.

[Stillbirths not included.]

Ages	Residents.		Transients.		Total.
	Male.	Female.	Male.	Female.	
Under 30 days	40	30	1		71
30 days to under 1 year	82	54	6	15	167
1 year to under 2 years	35	39	2	4	84
2 years to 4 years	30	27	4	5	66
5 years to 9 years	9	8	3	3	23
10 years to 14 years	8	6		1	15
15 years to 19 years	11	6	5	3	25
20 years to 29 years	40	23	12	5	80
30 years to 39 years	25	23	3	7	58
40 years to 49 years	23	14	6	4	47
50 years to 59 years	21	13	8	1	43
60 years to 69 years	23	12	3	1	39
70 years to 79 years	15	9	2		26
80 years to 89 years	9	8	1	1	19
90 years to 99 years	2	14	1		17
100 years and over		1		1	2
Age not stated			1	1	2
Total	377	287	58	52	774

¹ One (1) male, nationality, age and permanent residence and known, not included in this table.

DEATHS AND DEATHRATE PER 1,000, BY DISTRICTS, INCLUDING TRANSIENTS.

[Stillbirths not included.]

Health districts.	Deaths.	Annual death rate per 1,000.
No. 1, Intramuros.....	121	40.80
No. 2, Meisic.....	146	17.67
No. 4, Sampaloc.....	105	26.82
No. 5, Tondo.....	335	52.38
No. 6, Paco.....	68	26.88
Total.....	775	32.13

NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG RESIDENTS IN THE CITY OF MANILA.

[Stillbirths not included.]

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Fe- male.	Male.	Fe- male.	Male.	Fe- male.	Male.	Fe- male.	Male.	Fe- male.	Male.	Fe- male.	
I. General diseases.													
1. Typhoid fever.....			9	7						1			17
6. Measles.....	1												1
8. Whooping cough.....				2									2
9. Diphtheria and croup.....			1	1									2
10. Influenza.....			2										2
12. Asiatic cholera.....			10	9									19
14. Dysentery.....			1		1								2
18. Erysipelas.....			1										1
20. Purulent infection and septicæmia.....			1										1
23. Rabies.....			1										1
24. Tetanus.....			3	1									4
27. Beriberi.....			38	25									64
28. Tuberculosis of the lungs.....			78	48	1				6		1		134
29. Acute military tuberculosis.....			1										1
30. Tuberculous meningitis.....			2	2									4
31. Abdominal tuberculosis.....			2			1							3
35. Disseminated tuberculosis.....			2										2
36. Rickets.....			1										1
37. Syphilis.....			2										2
40. Cancer and other malignant tumors of the stomach, liver.....			3										3
42. Cancer and other malignant tumors of the female genital organs.....				2									2
45. Cancer and other malignant tumors of other organs or of organs not specified.....			1	1									2
48. Chronic rheumatism and gout.....			1										1
II. Diseases of the nervous system and of the organs of special sense.													
61. Simple meningitis.....			6	12									20
61a. Cerebro-spinal fever.....	1			1						1			1
64. Cerebral hæmorrhage, apoplexy.....			3	2									5
66. Paralysis without specified cause.....			1	1									2
71. Convulsions of infants (under 5 years of age).....			1	2						1			4
III. Diseases of the circulatory system.													
78. Acute endocarditis.....			2	1									3
79. Organic diseases of the heart.....			4	6		1				2			13
81. Diseases of the arteries, atheroma, aneurysm, etc.....													1

NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG RESIDENCE IN THE CITY OF MANILA—Continued.

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Fe- male.	Male.	Fe- male.	Male.	Fe- male.	Male.	Fe- male.	Male.	Fe- male.	Male.	Fe- male.	
IV. Diseases of the respiratory system.													
89. Acute bronchitis.			28	25									53
90. Chronic bronchitis.			6	8									16
91. Broncho-pneumonia.			20	19					2				40
92. Pneumonia.			4	5						1			9
96. Asthma.			1	4									5
V. Diseases of the digestive system.													
102. Ulcer of the stomach.			1	2									3
103. Other diseases of the stomach (cancer excepted).			1										1
104. Diarrhoea and enteritis (under 2 years)			25	12									37
105. Diarrhoea and enteritis (2 years and over)			7	10									17
107. Intestinal parasites.				1									1
108. Appendicitis and typhilitis.			1										1
109. Hernia, intestinal obstructions.				1					1				1
113. Cirrhosis of the liver.				1									1
115. Other diseases of the liver.			2	1									3
117. Simple peritonitis (nonpuerperal).			2	1									3
VI. Nonvenereal diseases of the genito-urinary system and annæa.													
119. Acute nephritis.			4	5									9
120. Bright's disease.			10	11					2				23
122. Other diseases of the kidneys and annæa.			1										1
VII. The puerperal state.													
134. Accidents of pregnancy.				1									1
135. Puerperal hæmorrhage.				1									1
137. Puerperal septicæmia.											1		1
138. Puerperal albuminuria and convulsions.				2									2
VIII. Diseases of the skin and of the cellular tissue.													
142. Gangrene.			1										1
XI. Diseases of early infancy.													
151. Congenital debility, icterus and sclerema:													
(1) Premature birth (not stillborn)			7	5							1		13
(2) Congenital debility			23	16							2		41

V. Diseases of the digestive system.

102. Ulcer of the stomach.	1								1
104. Diarrhoea and enteritis (under 2 years).									1
105. Diarrhoea and enteritis (2 years and over).									1
108. Appendicitis and typhlitis.									1
113. Cirrhosis of the liver.	1								1

VI. Nonvenereal diseases of the genito-urinary system and anus.

119. Acute nephritis.									1
120. Bright's disease.									2
									5

VII. The puerperal state.

138. Puerperal albuminuria and convulsions.									1
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VIII. Diseases of the skin and of the cellular tissue.

142. Gangrene.									1
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XI. Diseases of early infancy.

151. Congenital debility, icterus and sclerema:									
(2) Congenital debility.									1
152. Other diseases peculiar to early infancy:									
(2) Other causes peculiar to early infancy.									1

XII. Old age.

154. Senility.									
									2
									1

XIII. Affections caused by external causes.

164. Poisoning by food.									
167. Burns (conflagration excepted).									1
176. Traumatism by other crushing (vehicles, railways, landlides, etc.).									1

Total	3		51	51		1		3	1	110
Grand total.	3		102			1		4		110

INFANT MORTALITY.

[Stillbirths not included.]

Causes of death.	Under 24 hours.	24 hours to under 36 hours.	36 hours to under 48 hours.	48 hours to under 14 days.	14 days to under 1 year.	Total.
Asphyxia, neonatorum.	1					1
Asthenia (malnutrition).					1	1
Athrepsia.					3	3
Beriberi infantile.				9	60	69
Bronchitis, acute.					31	31
Bronchitis, capillary.					3	3
Bronchitis, chronic.					4	4
Bronchitis, suppurative.				1		1
Broncho-pneumonia.					16	16
Broncho-pneumonia, acute, severe.					1	1
Congenital umbilical, hernia.	1					1
Convulsions, infantile.				1	2	3
Debility, congenital.	9			20	7	36
Diarrhoea and enteritis, chronic.					1	1
Dysentery, acute.					1	1
Enteritis, acute.					3	3
Enteritis, chronic.					1	1
Erysipelas, foot left.					2	2
Extensive hemorrhage, lungs, hematoma, scalp, congestion, viscera.		1				1
Gangrene, gaseous.					1	1
Gastroenteritis.					5	5
Gastroenteritis, acute.					2	2
Gastroenteritis, chronic.					2	2
Grippe.					2	2
Ileocolitis, acute.					2	2
Malnutrition.					2	2
Marasmus.					3	3
Melena neonatorum.				1		1
Meningitis, acute.					6	6
Meningitis, tuberculous.					2	2
Miscarriage.	2					2
Myocarditis, acute.					1	1
Nephritis, exudative.					1	1
Pertusis.					2	2
Prematurity.	8			2		10
Pyæmia.					1	1
Pyelitis.					1	1
Status lymphaticus, thymicus.					1	1
Tetanus, umbilical.				2		2
Total.	21	1		36	170	228

ANTI-PLAGUE CAMPAIGN IN THE CITY OF MANILA.

Number of spring traps set.	35,985
Number of rats caught with spring traps.	6,048
Number of wire traps set.	315
Number of rats caught by wire traps.	3
Number and kind of baits (coconuts).	35,300
Number of poison portions placed.	29,024
Number of rats found poisoned.	493
Number of rats killed by clubs and other weapons.	1,136
Number of rats found dead from other causes.	503
Total number of rats otherwise caught, found dead or killed.	8,183
Total number of rats sent to Laboratory for examination.	8,183
Total number of rats found positive for plague.	0

TYPHOID FEVER REPORTED DURING THE MONTH OF SEPTEMBER, 1921, CITY OF MANILA, RESIDENTS ONLY.

CASES.

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	
Living:											
Male.....	10		8		8		2	1	4	3	36
Female.....	1		8	2	3		6				20
Dead:											
Male.....			2	2	1			1			6
Female.....		1					2	3		1	7
Total:											
Male.....	10		10	2	9		2	2	4	3	42
Female.....	1	1	8	2	3		8	3		1	27
Grand total.....	11	1	18	4	12		10	5	4	4	69

DEATHS.

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	
Male.....			2	2	3		1	1	1	2	12
Female.....		1	1		1		3	3			9
Total.....		1	3	2	4		4	4	1	2	21

Total cases reported within the month.....	85
Provincial cases reported in the city of Manila.....	16
City cases (residents only).....	69
Total deaths reported within the month.....	28
Deaths among provincial cases reported in the city of Manila.....	7
Deaths among the city cases.....	21
Total confirmed as typhoid fever.....	83
Widal reaction.....	36
Blood culture.....	15
Autopsy.....	0
Clinically positive.....	32
Cases not confirmed as typhoid fever.....	2
Paratyphoid fever; 3 cases, 1 death.	

**DYSENTERY CASES REPORTED DURING THE MONTH OF SEPTEMBER, 1921
CITY OF MANILA, RESIDENTS ONLY.**

CASES.

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	
Living:											
Male.....	5	2	3		4	1	1	1	2		19
Female.....	8		3			1	3	2		1	18
Dead:											
Male.....	1		1	3	1			5			11
Female.....	1		1	1				3	1	1	8
Total:											
Male.....	6	2	4	3	5	1	1	6	2		36
Female.....	9		4	1		1	3	5	1	2	26
Grand total.....	15	2	8	4	5	2	4	11	3	2	56

**DYSENTERY CASES REPORTED DURING THE MONTH OF SEPTEMBER, 1921
CITY OF MANILA, RESIDENTS ONLY—Continued.**

DEATHS.

Sex.	Health districts.										
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		Total.
	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	
Male.....	3		2		1			5			11
Female.....			2	1	1			3	1	1	9
Total.....	3		2	3	2			8	1	1	20

Total cases reported within the month.....	68
Provincial cases reported in the city of Manila.....	12
City cases (residents only).....	56
Total deaths reported within the month.....	21
Deaths among provincial cases reported in the city of Manila.....	1
Deaths among city cases.....	20
Reported as:	
Amoebic dysentery.....	10
Acute dysentery.....	9
Bacillary dysentery.....	4
Chronic dysentery.....	8
Not dysentery.....	2
Dysentery.....	35
Total.....	68

**SUSPECT CHOLERA REPORTED DURING THE MONTH OF SEPTEMBER, 1921 CITY
OF MANILA, RESIDENTS ONLY.**

CASES.

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male			4		1		1		1		7
Female											
Dead:											
Male											
Female											
Total:											
Male			4		1		1		1		7
Female											
Grand total			4		1		1		1		7

DEATHS.

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male			1								1
Female											
Total.			1								1

**SUSPECT CHOLERA REPORTED DURING THE MONTH OF SEPTEMBER, 1921,
CITY OF MANILA, RESIDENTS ONLY—Continued.**

Total cases reported within the month.....	10
Provincial cases reported in the city of Manila.....	1
Foreign cases reported in the city of Manila.....	2
City cases (residents only).....	7
Cases confirmed as cholera.....	1
Cases not confirmed (found negative).....	9
Total deaths reported within the month.....	2
Deaths among provincial cases reported in the city of Manila.....	1
Deaths among foreign cases reported in Manila.....	0
Deaths among city cases.....	1
Deaths confirmed as cholera.....	1
Deaths not confirmed.....	1
Cholera carriers, none.	

**DIPHTHERIA REPORTED DURING THE MONTH OF SEPTEMBER, 1921, CITY OF
MANILA, RESIDENTS ONLY.**

CASES.

		Health districts.										
		No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
Reported.		Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Total.
Living:												
Male				1		1		1				3
Female		1		1		1				1		4
Dead:												
Male												
Female												
Total:												
Male				1		1		1				3
Female		1		1		1				1		4
Grand total		1		2		2		1		1		7

DEATHS.

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male					1		1				2
Female											
Total.					1		1				2

Total cases reported within the month.....	11
Provincial cases reported.....	4
City cases reported.....	7
City cases confirmed as diphtheria.....	3
City cases not confirmed.....	4
Total deaths reported within the month.....	3
City death not confirmed.....	1
City deaths confirmed.....	1
Deaths among provincial cases.....	1

**OTHER COMMUNICABLE DISEASES REPORTED IN THE CITY OF MANILA DURING
THE MONTH OF SEPTEMBER, 1921, RESIDENTS ONLY.**

Diseases.	Cases.	Deaths.
Smallpox.....		
Varioloid.....		
Varicella.....	4	
Measles.....	12	1

NOTE:—Also reported in the city, 1 foreign case of varicella and 2 provincial cases of measles.

REPORT ON THE DISTRIBUTION OF ASSORTED SERA AND VACCINES.

Sera and vaccines.	On hand Septem- ber 1, 1921.	Received during the month.	Total to be accounted for.	Distrib- uted dur- ing the month.	Remaining at the end of the month.
Anti-cholera vaccines (c.c.).....	8,820	41,640	50,460	45,410	5,050
Anti-diphtheric (units).....	747,000		747,000		747,000
Anti-dysenteric (ampoules).....	35	15	50	30	20
Anti-tetanic (units).....	110,000	400,000	510,000	400,000	110,000
Dried vaccine virus (units).....	28,800	40,000	68,800	41,500	26,300
Fresh vaccine virus (units).....	51,900	200,000	251,900	183,600	68,300
Gonococcus (ampoules).....		250	250	250	
Streptococcus and staphylococcus com- bined (ampoules).....		20	20	20	
Typhoid and paratyphoid (c.c.).....	1,830	4,000	5,830	4,520	1,310

**SMALLPOX VACCINATIONS IN THE CITY OF MANILA, DURING THE MONTH OF
SEPTEMBER, 1921.**

Districts.	Total vac- cinations.	Total in- spections.	Positive.	Negative.
No. 1, Intramuros.....	470	447	279	168
No. 2, Meisic.....	1,374	867	484	383
No. 4, Sampaloc.....	1,205	671	354	317
No. 5, Tondo.....	1,809	1,412	887	525
No. 6, Paco.....	550	565	378	187
Total.....	5,408	3,962	2,382	1,580

**CONSOLIDATED CHOLERA VACCINATIONS FOR THE MONTH OF SEPTEMBER IN
THE CITY OF MANILA.**

Districts.	Number of persons vaccinated.								Total.
	Males.				Females.				
	Double in- jections.		Single in- jections.		Double in- jections.		Single in- jections.		
	A.	C.	A.	C.	A.	C.	A.	C.	
No. 1, Intramuros.....			290	11			95	7	403
No. 2, Meisic.....	6	6	1,055	41	5	7	230	41	1,391
No. 4, Sampaloc.....			8				11	1	20
No. 5, Tondo.....	23	1	85	17	24	2	34	3	189
No. 6, Paco.....			727	404			656	396	2,183
Total.....	29	7	2,165	473	29	9	1,026	448	4,186

NOTE: A. means adults, C. children.

**CONSOLIDATED TYPHOID VACCINATIONS FOR THE MONTH OF SEPTEMBER IN
THE CITY OF MANILA.**

Districts.	Number of persons vaccinated.				Total.
	Males.		Females.		
	Adults.	Children.	Adults.	Children.	
No. 1, Intramuros.....	149	9	280	4	442
No. 2, Meisic.....	85	27	117	43	272
No. 4, Sampaloc.....	194	3	63	4	264
No. 5, Tondo.....	144	27	96	12	279
No. 6, Paco.....	41	50	55	56	202
Total.....	613	116	611	119	1,459

**SMALLPOX VACCINATIONS IN THE PROVINCES FOR THE
CALENDAR YEAR 1921.**

Provinces.	Vaccinations.	Inspections.	Positive.	Negative.
Abra.....	8,856	7,907	4,695	3,212
Albay.....	32,603	23,984	17,806	6,678
Antique.....	9,944	9,284	6,181	3,103
Bataan.....	6,877	6,727	4,689	2,038
Batanes.....	1,289	1,279	1,023	256
Batangas.....	35,665	12,030	8,765	3,265
Bohol.....	33,983	29,615	19,035	10,580
Bulacan.....	30,332	19,508	14,664	4,844
Cagayan.....	13,799	9,316	6,365	2,951
Camarines Norte.....	740	512	235	277
Camarines Sur.....	44,606	28,415	21,326	7,089
Capiz.....	34,221	33,310	25,179	8,181
Catanduanes.....	5,533	4,252	3,066	1,186
Cavite.....	23,674	21,178	14,833	6,345
Cebu.....	229,187	153,222	86,181	67,041
Culion Leper Colony.....	368	361	195	166
Ilocos Norte.....	16,448	14,181	6,980	7,201
Ilocos Sur.....	35,256	25,115	15,517	9,598
Iloilo.....	67,298	40,807	31,540	9,267
Isabela.....	4,661	4,189	1,871	2,318
Laguna.....	19,562	17,797	12,671	5,126
La Union.....	74,507	48,917	32,628	16,289
Leyte.....	118,275	60,999	41,093	19,906
Marinduque.....	11,305	9,100	5,947	3,153
Masbate.....	2,187	2,187	1,398	789
Mindoro.....	6,799	5,863	2,963	2,900
Mountain.....	25,129	18,344	12,570	5,774
Nueva Ecija.....	125,116	77,431	52,185	25,246
Nueva Vizcaya.....	2,405	2,274	1,822	452
Occidental Negros.....	25,454	19,259	12,456	6,803
Oriental Negros.....	30,525	25,887	18,679	7,208
Palawan.....	593	190	87	103
Pampanga.....	27,047	15,270	10,335	4,985
Pangasinan.....	238,592	204,047	119,089	84,958
Rizal.....	27,246	21,515	14,039	7,476
Romblon.....	34,686	22,812	14,052	8,760
Samar.....	8,499	4,911	2,915	1,996
Sorsogon.....	116,057	75,422	49,238	26,184
Tarlac.....	7,274	7,287	4,846	2,441
Tayabas.....	22,444	19,010	13,237	5,773
Zambales.....	8,693	7,841	5,572	2,269
Total.....	1,567,734	1,111,555	717,468	394,087

¹ From reports received up to September, 1921.

CONSOLIDATED CHOLERA VACCINATIONS REPORTED FROM PROVINCES FOR THE MONTH OF SEPTEMBER.

Provinces.	Week ending 3rd.		Week ending 10th.		Week ending 17th.		Week ending 24th.		Total.	
	A.	C.	A.	C.	A.	C.	A.	C.	A.	C.
Abra.....					29	145	63	135	92	280
Albay.....	389	183	445	338	774	413	633	580	2,241	1,514
Bataan.....			38	99	7	102			45	201
Bulacan.....	75	128	297	354	209	540	435	288	1,016	1,305
Cagayan.....	368	390	151	104					519	494
Cavite.....			83	17	44	20			127	37
Cebu.....	446	618	28	1	345	604	185	275	1,004	1,498
Ilocos Sur.....	654	472	672	361	578	244	577	198	2,481	1,275
Iloilo.....	251	199	259	268	70	248	246	271	986	826
Laguna.....							5	56	5	56
La Union.....	216	192	620	729	323	139			1,159	1,060
Marinduque.....	52	48							52	48
Mindoro.....					163	98			163	98
Misamis.....	80	94	54	10	121	33			255	137
Oriental Negros.....	21	121	24	33					45	154
Pampanga.....	470	1,040	306	447	742	1,183	326	125	1,844	2,795
Pangasinan.....	170	703	176	520	223	171	251	424	830	1,818
Rizal.....	24	10							24	10
Tayabas.....	377	13					171	9	548	22
Total.....	3,593	4,211	3,153	3,281	3,628	3,940	2,902	2,356	13,436	13,628

NOTE: A. means adults, C. children.

CONSOLIDATED TYPHOID VACCINATIONS REPORTED FROM PROVINCES FOR THE MONTH OF SEPTEMBER.

Province.	Week ending 3rd.		Week ending 10th.		Week ending 17th.		Week ending 24th.		Total.	
	A.	C.	A.	C.	A.	C.	A.	C.	A.	C.
La Union.....	87	14	32	29	66	.....	318	262	503	305
Total.....	87	14	32	29	66	.....	318	262	503	305

NOTE: A. means adults, C. children.

SMALLPOX REPORTED FROM THE PROVINCES, FOR THE MONTH OF SEPTEMBER, 1921.

Provinces and towns.	Number.	
	Cases.	Deaths.
Bukidnon:		
Tankulan.....	35	20
Oriental Negros:		
Dauin.....	3	.....
Tayabas:		
Baler.....	1	.....
Total.....	39	20

CHOLERA REPORTED FROM THE PROVINCES, FOR THE MONTH OF SEPTEMBER, 1921.

No cases no deaths reported.



THE GOVERNMENT OF THE PHILIPPINE ISLANDS
DEPARTMENT OF PUBLIC INSTRUCTION

MONTHLY BULLETIN
OF THE
PHILIPPINE HEALTH SERVICE

VOL. I

OCTOBER, 1921

No. 4

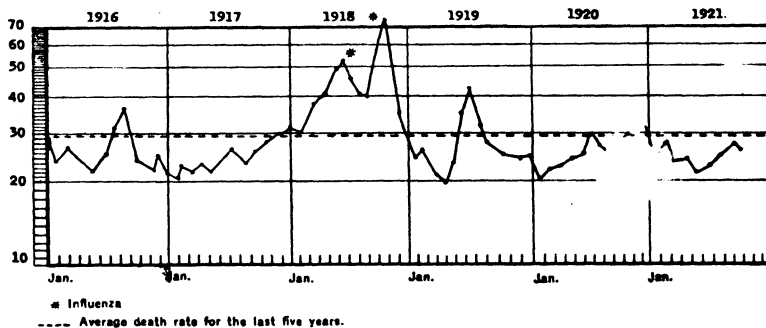
The care of the public health is the first duty of the statesman.—DISRAELI.



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ANNUAL DEATH RATES BY MONTH, CITY OF MANILA



MANILA
BUREAU OF PRINTING
1921

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L. LOPEZ RIZAL, *Senior Medical Inspector, P. H. S., Member*
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WHO AM I?

I am more powerful than the combined armies of the world.

I am more deadly than bullets, and I have wrecked more homes than the mightiest of siege guns.

I steal in the Philippine Islands alone many millions of pesos each year.

I spare no one, and find my victims among the rich and poor alike, the old and young, the strong and the weak.

I massacre thousands and thousands of wage-earners each year.

I lurk in unseen places and do most of my work silently. You are warned against me, but you heed not.

I am relentless. I am everywhere; in the home, on the street, in the factory, at the railroad crossing, and on the sea.

I destroy, crush and maim; I give nothing and take all.

I am your worst enemy.

I AM CARELESSNESS. (Adapted from *Exchange*.)

But one thing can conquer me!

HEALTH EDUCATION

MONTHLY BULLETIN

OF THE

PHILIPPINE HEALTH SERVICE

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BALANCE OF FACTS ON INFANTILE BERIBERI

By **Dr. L. LOPEZ RIZAL**

From a short study of the present situation of infantile beriberi in the City, the figures recorded in the Office of Statistics and the literature on the subject as well, there comes out a series of facts which I consider of interest on the subject especially as far as it holds some relation with infant mortality.

From a paper of Dr. Benito Valdes on the frequency of beriberi in mothers, *El Beriberi en las Embarazadas*, I found very interesting statistics compiled from the obstetrical department of the Philippine General Hospital. It shows that 15.95 per cent of mothers seen during puerperium developed beriberi. On the other hand, Dr. J. Albert finds beriberi in 38 per cent of children less than one year of age.

I consider Dr. Valdes's figure as a conservative one inasmuch as it only includes mothers who have been seen during puerperium and who developed beriberi at that period. Taking, therefore, Dr. Albert's figure as a basis for estimating the number of potential beriberi children (regardless of any other consideration or factors), I find that it would be possible to estimate the number of infantile beriberi cases every year on the basis of the number of registered births. The following table gives an idea of the number of cases of beriberi by year in Manila:

Year.	1910	1911	1912	1913	1914	1915
Births.....	9,694	9,330	9,142	8,695	9,599	8,850
Potential cases of infantile beriberi.....	3,684	3,545	3,474	3,304	3,648	3,368

Year.	1916	1917	1918	1919	1920	Total.
Births.....	9,082	8,888	9,088	10,029	12,614	105,001
Potential cases of infantile beriberi.....	3,451	3,375	3,452	3,811	4,798	39,900

From careful observations we know that with the prophylactic use of tikitiki only two per cent. of births develop beriberi. Therefore, had we employed the prophylaxis since 1910, the number of developed cases would have been:

Year.	1910	1911	1912	1913	1914	1915
Cases of infantile beriberi if tikitiki had been used	194	187	183	174	192	177
Year.	1916	1917	1918	1919	1920	Total.
Cases of infantile beriberi if tikitiki had been used	181	178	182	200	252	2,100

If it is desired to estimate the yearly number of deaths that should occur among the potential cases of infantile beriberi without treatment with tikitiki, taking as a basis the findings of the late Dr. M. Guerrero wherein he gives a 20 per cent case fatality in all forms of infantile beriberi without tikitiki treatment, we would have a mortality as follows:

Year.	1910	1911	1912	1913	1914	1915
Cases	3,684	3,545	3,474	3,304	3,648	3,663
Deaths	737	709	695	661	730	673
Deaths as reported in the statistical office	1,249	1,162	887	687	899	1,058
Year.	1916	1917	1918	1919	1920	Total.
Cases	3,451	3,375	3,452	3,811	4,793	39,900
Deaths	690	675	690	762	968	7,980
Deaths as reported in the statistical office	805	384	597	354	555	8,637

Had all cases been properly treated, and assuming that the figure obtained by us (4.11 per cent case fatality) with tikitiki treatment is fairly correct, the number of deaths would have been reduced considerably as shown by the following:

Year.	1910	1911	1912	1913	1914	1915
Deaths if tikitiki had been used	151	146	143	136	150	138
Year.	1916	1917	1918	1919	1920	Total.
Deaths if tikitiki had been used	142	139	142	156	197	1,640

SUMMARY

The campaign against beriberi in adults and children should not be considered a negligible factor in the reduction of infant mortality, for this reason:

WITHOUT TIKITIKI

Average number of cases: 3,600
cases a year.

Average number of deaths: 726
cases a year.

10 children die out of 100 births.

20 children die out of 100 cases.

38 children develop beriberi out of
100 births.

WITH TIKITIKI

Average number of cases: 191 a
year.

Average number of cases: 150 a
year.

5 children die out of 100 births.

4 children die out of 100 cases.

2 children develop beriberi out of
100 births.

BUILD WITHOUT TROUBLE

By M. MAÑOSA, *Sanitary Engineer, P. H. S.*

The experience of the past has shown a remarkable lack of knowledge of the laws and regulations regarding construction of buildings on the part of the public. Ignorance of the law excuses nobody. This is a truism which should be borne in mind. There are laws promulgated which are existent and which should be obeyed. The Office of Sanitary Engineering feels it to be its duty to give due publication of the principles of these regulations. The responsibility is not only of him who transgresses them, but also of him who permits their transgression.

For the benefit and welfare of all the members of our community we have building laws. These laws are in the statute books to prevent overcrowding, lack of ventilation, insanitary conditions in the house, and all such disagreeable features which endanger the health of the inmates or that of their neighbors. The laws are for the benefit of all and not for the welfare of one particular individual. And so in their enforcement, everybody must be treated alike, rich or poor, weak or powerful.

Before the law everybody is equal. And for this very reason the law is applied to everybody without distinction. The building laws are being enforced strictly to safeguard the health of the general public. Buildings must be constructed in accordance with the regulations as provided by the City's building laws. It is for the benefit of the people to know that the building laws are here to be strictly enforced. Whoever builds his house without the necessary permit or without taking into consideration the provisions of the building laws is running the risk of incurring great expense for the remodelling of his building to comply with the building laws after it has already been constructed.

For the welfare of the general public, the Office of the Sanitary Engineering desires to remind owners and prospective proprietors of the following points, which should be borne in mind before undertaking the construction of a building, to avoid the inconveniences and difficulties they may encounter with the different building departments:

1. There is an ordinance that governs the alteration or addition to any building.
2. There is an ordinance that regulates plumbing construction and that all work should be done by a Licensed Master Plumber.
3. A certain percentage of the lot should be left unoccupied and a back yard is required in every building used for living purposes.
4. Every building must be located along approved streets and must be connected to the sanitary sewer.
5. The filling in of excavations or lowlands to the height required by the City Engineer is a requisite necessary for a good drainage.

6. Unless the building is connected with the sanitary sewer, no alteration or repair is allowed.

7. When openings are made overlooking the adjoining property, a minimum distance of two meters from the limit of the lot to the neighbor's building is required.

8. In light material construction, of houses of more than 50 square meters of area, a plan is required to show the interior arrangement.

9. To save time and avoid troubles, it is always more convenient and safe to obtain a permit before beginning any alteration in the building.

10. Never deviate from the plan filed. It should be followed closely. Correction in the plan should be made before beginning any alteration in the building.

11. No building should be occupied until the final certificate is issued to the owner.

12. The Office of the Sanitary Engineer is always ready to answer questions relating to any construction work.

We have to correct our living conditions, as it does not speak very highly of us as a people to have our housing problem unimproved. Especially among our poorer classes, it is discouraging to say the least. We have Tondo for example, where congestion is such that the people living there do not seem at all able to feel the warmth a solar ray or get a breath of God's pure air.

This is a problem which needs our preferential attention, our support, and our coöperation. If the public coöperates with the authorities, much will be done for the welfare of all. With this issue of our bulletin we begin this section on sanitary engineering by which we hope shall help in some way to enlighten the public on question affecting building problems. In the next issue we shall discuss Light and Ventilation.

GENERAL STATISTICS

[Unless otherwise stated these statistics are for the month of October, 1921.]

ESTIMATED POPULATION OF THE CITY OF MANILA FOR 1921.

BY NATIONALITIES.

Nationality.	Population
Americans.....	3,134
Filipinos.....	267,408
Spaniards.....	1,955
Other Europeans.....	1,126
Chinese.....	17,856
All others.....	2,186
Total.....	293,665

BY DISTRICTS.

Health districts.	Population
No. 1, Intramuros.....	36,108
No. 2, Meisic.....	100,587
No. 4, Sampaloc.....	47,662
No. 5, Tondo.....	77,863
No. 6, Paco.....	31,445
Total.....	293,665

Relative humidity.

Temperature.

Date.	Pressure ¹ mean.	In shade. ²				Underground.				Daily mean maximum.	Daily mean minimum.	Day.			
		Mean.	Absolute maximum.		Day.	Absolute minimum.		Day.							
			°C.	°F.		°C.	°F.		°C.				°F.		
1-10.....	mm. 758.04	26.6	32.8	6	2	22.1	72	13	29.5	85	29.7	85.5	1	80.5	6
11-20.....	60.37	26.2	33.1	19	13, 16	21.8	71.2	21	29.6	85.3	29.8	85.5	11	75.4	19
21-31.....	60.17	26.1	34.4	24	20.5	69	20.5	21	29.2	84.6	29.5	85.5	31	71.8	25

Wind.

Atmidometer²
(open air).

Rainfall.

Date.	Prevailing direction.	Velocity.		Atmidometer ² (open air).		Sunshine.		Rainfall.	
		Total.	Daily total maximum.	Day.	Total.	Daily maximum.	Day.	Total.	Rainy days.
1-10.....	E	Km. 1,062.0	Km. 133	3	mm. 23.6	mm. 3.2	6, 8	h. m. 65 30	6
11-20.....	E	1,008.5	129	17	29.9	4.5	19	64 15	19
21-31.....	E	1,335.5	163.5	25	42.8	5.5	3, 5	75 25	25
								30.3	8
								5.7	3
								1.4	2

¹ Corrected for instrumental error and for temperature and reduced to sea level. Correction to standard gravity, — 1.72 mm.

² These values are taken from instrument mounted in the Observatory Park, 1.5 meters above ground.

BIRTHS REPORTED IN THE CITY OF MANILA.

[Stillbirths not included.]

Nationality.	Male.	Female.	Total.	Annual birth rate per 1,000.
Americans.....	3	8	11	41.35
Filipinos.....	538	524	1,062	46.79
Spaniards.....	5	.....	5	30.13
Other Europeans.....	2	2	4	41.85
Chinese.....	22	25	47	31.01
All others.....	6	4	10	53.90
Total.....	576	563	1,139	45.70

BIRTHS, BY DISTRICTS.

Health districts.	Legitimates.			Illegitimates.			Grand total.	Annual birth rate per 1,000.
	Male.	Female.	Total.	Male.	Female.	Total.		
No. 1, Intramuros.....	84	86	170	18	7	25	195	63.63
No. 2, Meisic.....	94	92	186	8	11	19	205	24.01
No. 4, Sampaloc.....	88	68	156	2	6	8	164	40.54
No. 5, Tondo.....	205	203	408	13	10	23	431	65.22
No. 6, Paco.....	62	70	132	2	10	12	144	58.95
Total.....	533	519	1,052	43	44	87	1,139	45.70

Number of births attended by physicians, living, 272; stillbirths, 26.

Number of births attended by midwife, living, 93; stillbirths, 3.

Number of births attended by family, living, 774; stillbirths, 18.

NUMBER OF DEATHS AND DEATH RATE PER 1,000 AMONG RESIDENTS, IN THE CITY OF MANILA, BY NATIONALITIES.

[Stillbirths not included.]

Nationality.	Male.	Female.	Total.	Annual death rate per 1,000.
Americans.....	2	1	3	11.28
Filipinos.....	345	273	618	27.23
Spaniards.....	3	2	5	30.13
Other Europeans.....	.....	.....	.....	.....
Chinese.....	25	3	28	18.48
All others.....	4	1	5	26.95
Total and average.....	379	280	659	26.44

TOTAL DEATHS BY SOCIAL CONDITION, INCLUDING TRANSIENTS.

Social condition.	Male.	Female.
Married.....	122	77
Divorced.....	.....	.....
Widowed.....	30	53
Single.....	296	188
Conditions not stated.....	5	2
Total.....	453	320
Grand total.....	773	

Stillbirths.....	47
Number of deaths with medical attendance.....	338
Number of deaths without medical attendance.....	385

DEATHS BY AGES IN THE CITY OF MANILA.

[Stillbirths not included.]

Ages.	Residents.		Transients.		Total.
	Male.	Female.	Male.	Female.	
Under 30 days.....	35	32	2	1	70
30 days to under 1 year.....	84	67	15	13	179
1 year to under 2 years.....	26	24	5	5	60
2 years to 4 years.....	34	16	4	1	55
5 years to 9 years.....	19	8	2	1	30
10 years to 14 years.....	3	4	1	1	9
15 years to 19 years.....	13	8	4	1	26
20 years to 29 years.....	43	20	10	6	79
30 years to 39 years.....	29	20	7	1	57
40 years to 49 years.....	35	19	13	4	71
50 years to 59 years.....	16	13	2	6	37
60 years to 69 years.....	25	17	5	.....	47
70 years to 79 years.....	6	10	2	.....	18
80 years to 89 years.....	5	12	1	.....	18
90 years to 99 years.....	5	9	1	.....	15
100 years and over.....	.....	1	.....	.....	1
Age not stated.....	1	.....	.....	.....	1
Total.....	379	280	74	40	773

DEATHS AND DEATH RATE PER 1,000, BY DISTRICTS, INCLUDING TRANSIENTS.

[Stillbirths not included.]

Health districts.	Deaths.	Annual death rate per 1,000.
No. 1, Intramuros.....	140	45.68
No. 2, Meisic.....	124	14.52
No. 4, Sampaloc.....	110	27.19
No. 5, Tondo.....	313	47.36
No. 6, Paco.....	86	32.22
Total.....	773	31.01

III. Diseases of the circulatory system.

78. Acute endocarditis.....			2				2
79. Organic diseases of the heart.....			8	1	1	1	13
80. Angina pectoris.....			1				2
81. Diseases of the arteries, aneurysm, etc.....			1				1
84. Diseases of the lymphatic system (lymphangitis, etc.).....			1				1
85. Haemorrhage; other diseases of the circulatory system.....			1				1

IV. Diseases of the respiratory system.

89. Acute bronchitis.....	30	20					50
90. Chronic bronchitis.....	9	9					19
91. Broncho-pneumonia.....	24	18				1	43
92. Pneumonia.....	7	1				1	9
93. Pleurisy.....	2	1					3
94. Pulmonary congestion, pulmonary apoplexy.....	2						2
96. Asthma.....		4					4

V. Diseases of the digestive system.

103. Other diseases of the stomach (cancer excepted).....	1						1
104. Diarrhoea and enteritis (under 2 years).....	9	13				1	24
105. Diarrhoea and enteritis (2 years and over).....	6	6		1			14
108. Appendicitis and typhlitis.....		1				2	3
109. Peritonsillar and intestinal obstructions.....	3	2					5
112. Hernias, intestinal obstructions.....		1					1
113. Cirrhosis of the liver.....	1	1					2
114. Biliary calculi.....	1						1
117. Simple peritonitis (nonpuerperal).....	1	1					2

VI. Nonvenereal diseases of the genito-urinary system and annexa.

119. Acute nephritis.....	4	3				4	11
120. Bright's disease.....	14	12					26
123. Calculi of the urinary passages.....	1						1
124. Diseases of the bladder.....	1						1
125. Other diseases of the urethra, urinary abscess, etc.....	1						1

VII. The puerpera *latale*.

135. Puerperal haemorrhage.....		1					1
137. Puerperal septicaemia.....		1					1

VIII. Diseases of the skin and of the cellular tissue.

142. Gangrene.....	1						1
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IX. Diseases of the bones and of the organs of locomotion.

146. Diseases of the bones (tuberculosis excepted).....	1						1
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NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG RESIDENTS IN THE CITY OF MANILA—Continued.

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
X. Malformations.													
150. Congenital malformations (stillbirths not included):													
(2) Congenital malformations of the heart.....				2									2
XI. Diseases of early infancy.													
151. Congenital debility, icterus and sclerema:													
(1) Premature birth (not stillborn).....			3	2									5
(2) Congenital debility.....			24	24							1		49
152. Other diseases peculiar to early infancy:													
(2) Other causes peculiar to early infancy.....			2										2
XII. Old age.													
154. Senility.....			9	19									28
XIII. Affections caused by external causes.													
160. Suicide by cutting or piercing instruments.....			1										1
167. Burns (conflagration excepted).....			1										1
169. Accidental drowning.....			1										1
175. Traumatism by other crushing (vehicles, railways, etc.).....				2					1				3
180. Lightning.....			1										1
XIV. Ill-defined diseases.													
189. Cause of death not specified or ill-defined.....	1		4	1							1		7
Total.....	2	1	345	273	3	2			25	3	4	1	659
Grand total.....	3		618		5				28		5		659

INFANT MORTALITY.

Causes of death.	Under 24 hours.	24 hours to under 36 hours.	36 hours to under 48 hours.	48 hours to under 14 days.	14 days to under 1 year.	Total.
Anæmia following hæmorrhage.				1		1
Asphyxia.	1					1
Athrepsia.				1		1
Athrepsia with enteritis acute.				1		1
Beriberi infantile.			4	64		68
Bronchitis, acute.			1	37		38
Bronchitis, capillary.				1		1
Bronchitis, chronic.				8		8
Broncho-pneumonia.			1	15		16
Broncho-pneumonia post grippal.				1		1
Broncho-pneumonia, severe.				1		1
Congenital debility.	8			22	13	43
Congenital heart anomaly.					1	1
Convulsions, infantile.				2		2
Diarrhœa and enteritis.				2		2
Diphtheria.				1		1
Dysentery, acute.				1		1
Dyspepsia, chronic.				1		1
Empyema.				1		1
Enteritis, acute.				2		2
Enteritis, chronic.				1		1
Enterocolitis, chronic.				1		1
Erysipelas, face extremities and bodies.				1		1
Gastroenteritis.				2		2
Gastroenteritis, acute.				5		5
Gastroenteritis, chronic.				1		1
Hæmophysis and vomiting of blood.	1					1
Hæmorrhage, cerebral.				1		1
Hæmorrhage from cord. Hemophylac tendency.				1		1
Icterus.				1		1
Inanition.				1		1
Influenza.				1		1
Malformation congenital.				1		1
Malnutrition.				5		5
Marasmus.				2		2
Meningitis, acute.				5		5
Meningitis, purulent.				1		1
Meningitis, simple.				2		2
Meningitis, suppurative.				1		1
Meningitis, tuberculous.				1		1
Miscarriage.	1					1
Nephritis, acute.				3		3
Nephritis, chronic.				1		1
Paralysis, spasmodic.				1		1
Peritonitis, acute.				1		1
Pertussis.				1		1
Pneumonia, lobar.				1		1
Pneumonia, pulmonary.				1		1
Prematurity.	5			1		6
Scurvy infantile.				1		1
Syphilis, congenital.				1		2
Tetanus, umbilical.				3		3
Tuberculosis, pulmonary.					1	1
Total.	16			38	195	249

ANTI-PLAGUE CAMPAIGN.

Number of spring traps set.....	37,123
Number of rats caught with spring traps.....	5,648
Number of wire traps set.....	810
Number of rats caught by wire traps.....	7
Number and kind of baits (coconuts).....	37,433
Number of poison portions placed.....	30,682
Number of rats found poisoned.....	476
Number of rats killed by clubs and other weapons.....	1,529
Number of rats found dead from other causes.....	644
Total number of rats otherwise caught, found dead or killed.....	8,304
Total number of rats sent to Laboratory for examination.....	8,304
Total number found positive for plague.....	0

TYPHOID AND PARATYPHOID FEVER REPORTED DURING THE MONTH OF
OCTOBER, 1921, CITY OF MANILA, RESIDENTS ONLY.

CASES.

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Living.											
Male.	6		12	1	4		7	1	6	1	38
Female.	2		4				5	2	2		15
Dead:											
Male.		1	3		1		1	1	1		7
Female.	2				1		1			1	6
Total:											
Male.	6	1	15	1	4	1	7	2	7	1	45
Female.	4		4			1	6	3	2	1	21
Grand total.	10	1	19	1	4	2	13	5	9	2	66

DEATHS.

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Male	2	1	4	.....	2	1	1	2	8	.....	16
Female	2	.....	.....	.....	.....	1	2	1	.....	1	7
Total	4	1	4	.....	2	2	3	3	8	1	23

Total cases reported within the month.....	85
Provincial cases reported in the city of Manila.....	18
Foreign cases reported in the city of Manila.....	1
City cases (residents only).....	66
Total deaths reported within the month.....	30
Deaths among provincial cases reported in Manila.....	7
Deaths among foreign cases reported in Manila.....	0
Deaths among city cases.....	23
Total confirmed as typhoid fever.....	75
Widal reaction.....	35
Blood culture.....	0
Autopsy.....	0
Clinically positive.....	40
Cases confirmed as paratyphoid fever.....	5
Cases not confirmed.....	5

Paratyphoid..... (Province: 1 case, 0 death.
City: 4 cases, 1 death.)

¹ All include in the above table.

**DYSENTERIES REPORTED DURING THE MONTH OF OCTOBER, 1921, CITY OF
MANILA, RESIDENTS ONLY.**

CASES.

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Living:											
Male	3		3		2		6		1		15
Female	1		2	1	1		3			1	9
Dead:											
Male					1	1		5		1	8
Female	1										1
Total:											
Male	3		3		3	1	6	5	1	1	23
Female	2		2	1	1		3			1	10
Grand total	5		5	1	4	1	9	5	1	2	33

DEATHS.

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Male	1				2	3	4	5		1	16
Female							1				1
Total	1				2	3	5	5		1	17

Total cases reported within the month	36
Provincial cases reported in the city of Manila	3
City cases (residents only)	33
Total deaths reported within the month	18
Deaths among provincial cases reported in the city of Manila	1
Deaths among city cases	17
Reported as:	
Amoebic dysentery	4
Acute dysentery	7
Bacillary dysentery	3
Chronic dysentery	2
Dysentery	19
Not dysentery	1
Total	36

**SUSPECT CHOLERA REPORTED DURING THE MONTH OF OCTOBER, 1921, CITY OF
MANILA, RESIDENTS ONLY.**

CASES.

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Living:											
Male.....	1		4		1		5		1		12
Female.....			1								1
Dead:											
Male.....											
Female.....											
Total:											
Male.....	1		4		1		5		1		12
Female.....			1								1
Grand total.....	1		5		1		5		1		13

**SUSPECT CHOLERA REPORTED DURING THE MONTH OF OCTOBER, 1921, CITY OF
MANILA, RESIDENTS ONLY—Continued.**

DEATHS.

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Male.....			1				2				3
Female.....			1								1
Total.....			2				2				4

Total cases reported within the month.....	13
Provincial cases reported in the city of Manila.....	0
Foreign cases reported in the city of Manila.....	0
City cases (residents only).....	13
Cases confirmed as cholera.....	7
Cases not confirmed (found negative).....	6
Total deaths reported within the month.....	4
Deaths among provincial cases reported in the city of Manila.....	0
Deaths among foreign cases reported in Manila.....	0
Deaths among city cases.....	4
Deaths confirmed as cholera.....	2
Deaths not confirmed.....	2

Cholera carries: 2 cases, 2 deaths.

**DIPHTHERIA REPORTED DURING THE MONTH OF OCTOBER, 1921, CITY OF
MANILA, RESIDENTS ONLY.**

CASES.

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	
Living:											
Male.....	1								1		2
Female.....					1				1		2
Dead:											
Male.....							1				1
Female.....											
Total:											
Male.....	1						1		1		3
Female.....					1				1		2
Grand total.....	1				1		1		2		5

DEATHS.

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	
Male.....							1		1		2
Female.....									1		1
Total.....							1		2		3

Total cases reported within the month.....	5
Provincial cases reported.....	0
City cases reported.....	5
City cases confirmed as diphtheria.....	1
City cases not confirmed.....	4
Total deaths reported within the month.....	3
City deaths confirmed.....	1
City deaths not confirmed.....	2
Deaths among provincial cases.....	0

**OTHER COMMUNICABLE DISEASES REPORTED IN THE CITY OF MANILA DURING
THE MONTH OF OCTOBER, 1921, RESIDENTS ONLY.**

Diseases.	Cases.	Deaths.
Smallpox.....	0	0
Varioloid.....	0	0
Varicella.....	9	0
Measles.....	7	0

NOTE.—Also reported in the City, 1 provincial case of varicella and 1 provincial case of measles.

REPORT ON THE DISTRIBUTION OF ASSORTED SERA AND VACCINES.

Sera and vaccines.	On hand October 1, 1921.	Received during the month.	Total to be accounted for.	Distrib- uted, during the month.	Remain- ing at the end of the month.
Anti-cholera vaccines (c.c.).....	5,050	56,950	62,000	54,300	7,700
Anti-diphtheric serum (units).....	747,000		747,000		747,000
Anti-dysenteric serum (ampoules).....	20		20		20
Anti-tetanic serum (units).....	110,000	100,000	210,000	200,000	10,000
Dried vaccine virus (units).....	25,300	39,700	65,000	31,000	34,000
Fresh vaccine virus (units).....	68,300	200,000	268,300	189,900	78,400
Typhoid and paratyphoid vaccines (c.c.)..	1,310	4,000	5,310	2,030	3,280

**SMALLPOX VACCINATIONS IN THE CITY OF MANILA, DURING THE MONTH
OF OCTOBER, 1921.**

Health districts.	Total vaccina- tions.	Total inspec- tions.	Positive.	Negative.
No. 1, Intramuros.....	532	592	401	191
No. 2, Meisic.....	1,323	696	450	246
No. 4, Sampaloc.....	1,542	1,099	659	440
No. 5, Tondo.....	2,374	1,672	908	764
No. 6, Paco.....	544	467	252	215
Total.....	6,315	4,526	2,670	1,856

**CONSOLIDATED CHOLERA VACCINATIONS FOR THE MONTH OF OCTOBER IN THE
CITY OF MANILA.**

Districts.	Number of persons vaccinated.								Total.
	Males.				Females.				
	Double injections.		Single injections.		Double injections.		Single injections.		
	A.	C.	A.	C.	A.	C.	A.	C.	
No. 1, Intramuros.....			233	30			218	44	525
No. 2, Meisic.....			1,734	115			1,119	96	3,064
No. 4, Sampaloc.....			20	6			37	15	78
No. 5, Tondo.....			567	234			922	197	1,920
No. 6, Paco.....			633	393			514	389	1,929
Total.....			3,187	778			2,810	741	7,516

NOTE.—A, mean adults; C, children.

CONSOLIDATED TYPHOID VACCINATIONS FOR THE MONTH OF OCTOBER IN THE CITY OF MANILA.

Districts.	Number of persons vaccinated.				Total.
	Males.		Females.		
	Adults.	Children.	Adults.	Children.	
No. 1, Intramuros.	58	6	84	12	160
No. 2, Meisic.	422	8	42	7	479
No. 4, Sampaloc.	9		2		11
No. 5, Tondo.	168	52	185	57	462
No. 6, Paco.	86	48	50	27	211
Total.	743	114	363	103	1,323

CONSOLIDATED CHOLERA VACCINATION REPORTED FROM PROVINCES FOR THE MONTH OF OCTOBER.

Provinces.	Week ending first.		Week ending eighth.		Week ending fifteenth.	
	A.	C.	A.	C.	A.	C.
Abra ¹	96	356			11	217
Albay.....	626	390	689	375	670	321
Antique ¹	119	143				
Bohol ¹			637			
Bulacan ¹	323	457			506	476
Cagayan ¹	55	21				
Cavite ¹			66	13	85	14
Cebu ¹	894	659	273	141	255	98
Ilocos Sur ¹	490	211	461	111	488	116
Iloilo ¹	117	147	99	175	225	342
Isabela ¹	327	224				
Laguna.....	339	90				
La Union.....	351	240	428	218	415	200
Marinduque ¹			193	155		
Mindoro.....			143	85		
Misamis.....	107	24				
Nueva Vizcaya.....	124	151				
Oriental Negros ¹	281	772	267	12		
Pampanga ¹	152	157	62	7	33	80
Pangasinan ¹	392	270	907	406	4	60
Rizal ¹	387	216	128	43		
Tayabas ¹	190	7	110	172	245	105
Total.....	5,370	4,535	4,463	1,913	2,936	2,028

Provinces.	Week ending twenty-second.		Week ending twenty-ninth.		Total.	
	A.	C.	A.	C.	A.	C.
Abra ¹					107	573
Albay.....	419	244	643	412	3,047	1,742
Antique ¹					119	143
Bohol ¹			157	443	794	443
Bulacan ¹	176	71			1,004	1,003
Cagayan ¹					55	21
Cavite ¹	46	20			197	47
Cebu ¹					1,422	898
Ilocos Sur ¹					1,439	438
Iloilo ¹	230	249			671	913
Isabela ¹					327	224
Laguna.....					389	90
La Union.....	434	333			1,628	991
Marinduque ¹					193	155
Mindoro.....					143	85
Misamis.....					107	24
Nueva Vizcaya.....					124	151
Oriental Negros ¹					548	784
Pampanga ¹	114	98	50	10	411	352
Pangasinan ¹					1,303	736
Rizal ¹					516	259
Tayabas ¹					546	284
Total.....	1,419	1,015	850	865	15,038	10,356

¹ Report not complete.

NOTE.—A, means adults; C, children.

Other provinces' report not yet received.

TOTAL VACCINATIONS IN THE PROVINCES FOR THE YEAR 1921¹

Provinces.	Vaccina- tions.	Inspections.	Positive.	Negative.
Abra.....	9,896	8,761	5,167	3,594
Albay.....	32,603	23,984	17,306	6,678
Antique.....	11,860	10,575	6,962	3,613
Bataan.....	7,982	7,712	5,320	2,392
Batanes.....	2,307	2,231	1,882	849
Batangas.....	36,680	12,030	8,765	3,265
Bohol.....	37,967	33,115	21,211	11,904
Bulacan.....	30,332	19,508	14,664	4,844
Cagayan.....	15,394	10,814	7,028	3,786
Camarines Norte.....	740	512	235	277
Camarines Sur.....	50,379	33,621	25,443	8,178
Capiz.....	39,209	38,271	29,411	8,860
Catanduanes.....	5,533	4,252	3,066	1,466
Cavite.....	25,778	23,160	16,219	6,941
Cebu.....	244,390	164,323	91,506	72,817
Cullion Lepor Colony.....	368	361	195	166
Ilocos Norte.....	19,190	16,311	7,860	8,451
Ilocos Sur.....	39,992	28,841	17,853	10,988
Iloilo.....	75,040	46,361	35,735	10,626
Isabela.....	5,039	4,512	1,997	2,515
Laguna.....	22,659	20,765	14,508	6,257
La Union.....	76,463	50,436	33,201	17,235
Leyte.....	129,898	70,417	48,645	21,772
Marinduque.....	13,140	10,630	6,976	3,654
Masbate.....	2,187	2,187	1,398	789
Mindoro.....	7,736	6,503	3,245	3,258
Mountain.....	28,544	20,758	14,282	6,476
Nueva Ecija.....	142,563	88,224	58,348	29,876
Nueva Vizcaya.....	2,665	2,502	2,002	500
Occidental Negros.....	28,294	21,048	13,402	7,646
Oriental Negros.....	34,611	29,201	20,947	8,254
Palawan.....	393	190	87	103
Pampanga.....	29,279	16,435	11,202	5,233
Pangasinan.....	266,961	224,825	131,871	92,954
Rizal.....	28,993	22,900	14,821	8,079
Romblon.....	36,244	24,259	15,099	9,160
Samar.....	10,556	5,822	3,789	2,033
Sorsogon.....	129,793	86,242	54,601	31,641
Tarlac.....	8,498	8,085	5,416	2,669
Tayabas.....	25,439	21,754	15,199	6,555
Zambales.....	11,534	10,657	7,685	2,972
Total.....	1,726,579	1,233,095	794,049	439,046

¹ From reports received up to October, 1921.

CONSOLIDATED TYPHOID VACCINATION REPORTED FROM PROVINCES FOR THE MONTH OF OCTOBER

Province.	Week end- ing first.		Week end- ing eighth.		Week end- ing fif- teenth.		Week end- ing twenty- second.		Week end- ing twenty- ninth.		Total.	
	A.	C.	A.	C.	A.	C.	A.	C.	A.	C.	A.	C.
La Union.....					90						90	
Total.....					90						90	

NOTE.—A, means adults; C, children.

**SMALLPOX REPORTED FROM THE PROVINCES, FOR THE MONTH OF OCTOBER,
1921**

Provinces and towns.	Cases.	Deaths.
Oriental Negros:		
Dauin.....	8	1
Bukidnon:		
Maluce.....	7	2
Tankulan.....	43	17
Total.....	58	20

**CHOLERA REPORTED FROM THE PROVINCES, FOR THE MONTH OF OCTOBER,
1921**

Provinces and towns.	Cases.	Deaths.
Occidental Negros:		
Pulupandan.....	1	
Total.....	1	

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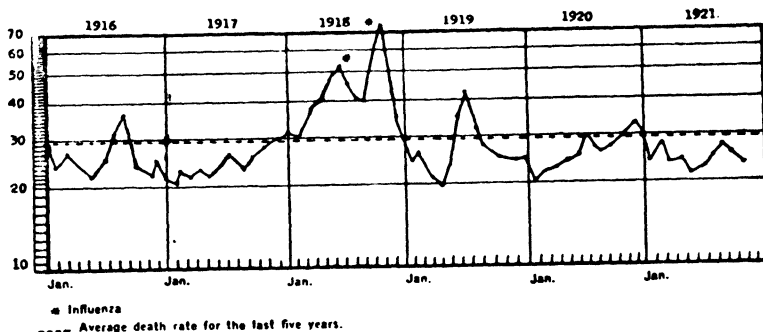
The care of the public health is the first duty of the statesman.—DISRAELI.



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1. Fly Survey in the City of Manila.
2. Auto Test on the Activity of Tuberculosis Lesions.
3. Tropical Sprue or Psilosis.
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5. Miscellaneous.
6. Vital Statistics for November.

ANNUAL DEATH RATES BY MONTH, CITY OF MANILA



MANILA
BUREAU OF PRINTING
1921

185311

COMMITTEE ON PUBLICATIONS

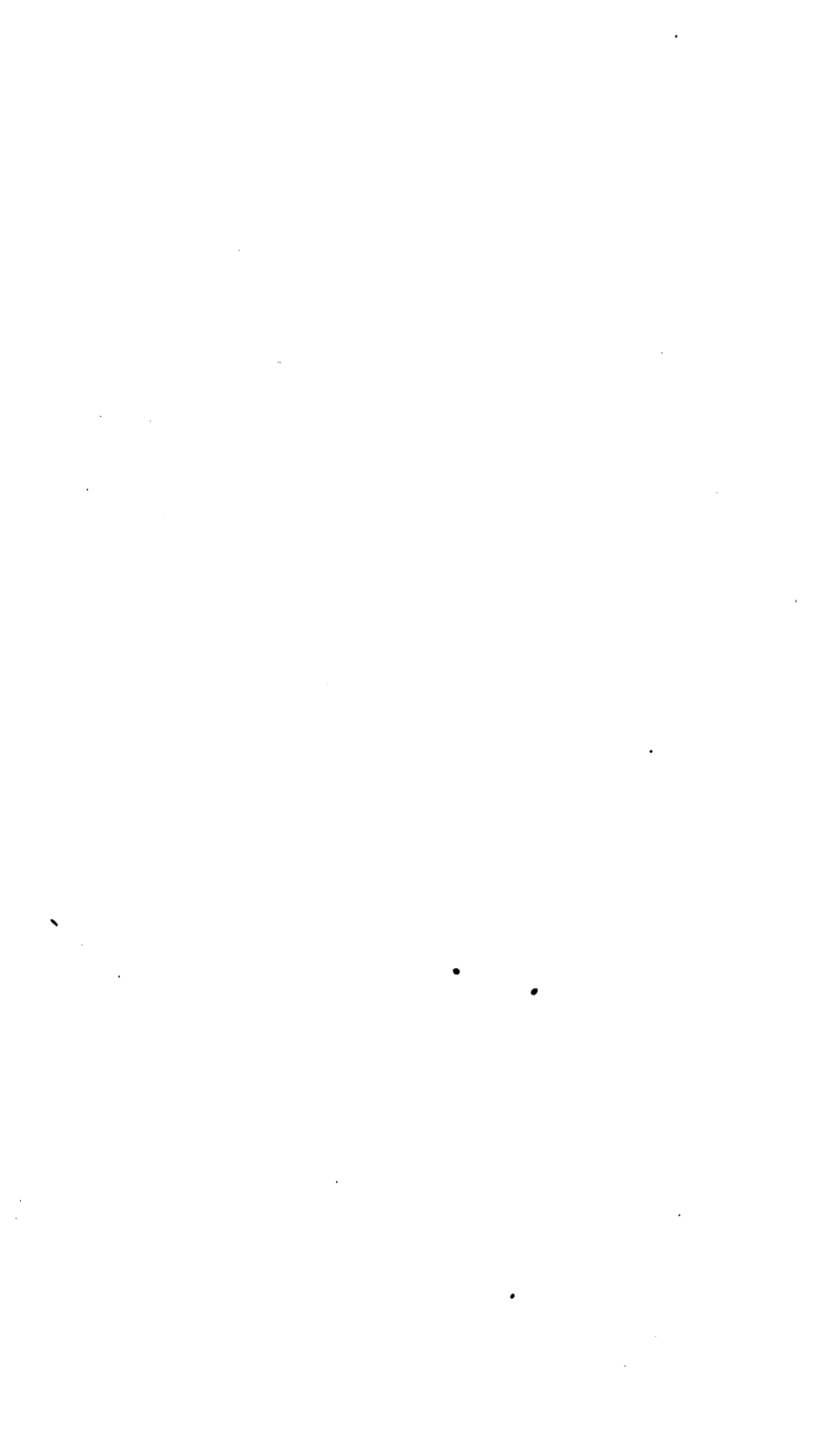
S. V. DEL ROSARIO, *Assistant Director of Health, Chairman*
J. P. BANTUG, *Senior Medical Inspector, P. H. S., Member*
L. LOPEZ RIZAL, *Senior Medical Inspector, P. H. S., Member*
M. V. ARGUELLES, *Senior Surgeon, P. H. S., Secretary*

DECÁLOGO DE SALUD Y PREVENCIÓN DE ENFERMEDADES COMUNICABLES.

1. Procure el registro completo e inmediato de cada nacimiento.
2. No renuncie sin razón suficiente a la lactancia materna de los niños (una buena nodriza puede servir).
3. Procure una alimentación variada y nutritiva para V. y su familia.
4. No beba más que agua buena y pura.
5. Conserve su casa y solar siempre limpios.
6. Provéase de una letrina sanitaria.
7. Destruya y elimine los criaderos de moscas, mosquitos e insectos.
8. Vacúnese contra la viruela, fiebre tifoidea y cólera.
9. Notifique inmediatamente a la sanidad cualquier caso de enfermedad comunicable.
10. Procure el aislamiento inmediato y eficaz de sus enfermos contagiosos.

RESPONSIBILITY IN THE TRANSMISSION OF VENEREAL DISEASES

Personal responsibility for the transmission of venereal disease has been upheld by both civil and criminal courts, says the U. S. Public Health Service. In Oklahoma a man has been sentenced to five years in the penitentiary for infecting a girl with syphilis. In Nebraska the court upheld a doctor who warned a hotel keeper that one of his patients, a guest at the hotel, had syphilis and had refused treatment and was consequently a menace to the public health. In North Carolina a woman has been awarded \$10,000 damages against her husband for a similar infection, and the Supreme Court upheld the judgment. (Louisiana State Board of Health *Quarterly Bulletin*, Vol. XII, No. 3, Sept., 1921.)



FLY SURVEY IN THE CITY OF MANILA

By LEONCIO LOPEZ RIZAL,
Senior Medical Inspector, P. H. S.

INTRODUCTION

In connection with a survey performed by Dr. S. V. del Rosario and myself toward the determination of factors influencing the causation of typhoid fever in the city of Manila during the last year, doubt has aroused as to the rôle played by flies in the transmission of the disease. By that time, it was assumed that flies played an important rôle, as mechanical carriers of typhoid germs. The assumption was, of course, accepted without convincing evidence and, also, on the ground that evidences to the contrary are lacking. To verify the extent to which our assumption might be accepted as reliable, a survey of flies during the last few months (about four months), when a few number of cases of dysentery and typhoid were being reported, was performed. The plan and the results of the survey are herein summarized.

PLAN OF THE SURVEY

The plan was outlined and the work carried out as follows:

1. Samples of flies were secured from low lands filled in with garbage, houses of living cases of dysentery or typhoid fever, markets and the neighborhood of these places.

Flies are captured by means of fly-nets made of sterile gauze with short handle.

2. Samples of flies captured from different places are introduced into separate sterile bottles, covered with gauze, and labeled. Each bottle is a sample containing from 10 to 30 or more flies from the same source.

3. Flies were then sent to the Bureau of Science for examination for *B. coli*, *B. dysenteries*, *B. typhosus*, and other micro-organisms.

At the same time that living flies were submitted for examination, prepared Petri dishes with culture media were exposed to flies for a certain period of time, but with every other source of contamination avoided. Petri dishes thus exposed were sent to the Bureau of Science for identification of colonies developing in the media. The results were recorded and tabulated as follows:

Flies were secured from 12 different places where cases of typhoid fever occurred and their surroundings. A total of 258 specimens were submitted for examination with the following results:

	Kind of closet used in the house.									
	Pail. ¹		Flush.		Public.		Total.		Percentage.	
	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.
Samples of flies from cases of typhoid fever and vicinity.....	7	0	144	11	92	4	243	15	94.19	5.81

¹ Positive for *B. coli*; other micro-organisms having been found negative.

FLIES FROM DYSENTERY CASES

The other group represents eight cases of dysentery and amount to a total of 139 samples with the following results:

	Kind of closet used in the house.									
	Pail.		Flush.		Public.		Total.		Percentage.	
	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.
Samples of flies from dysentery cases and vicinity.....	7	0	63	0	66	3	136	3	97.84	2.16

Samples of flies from low lands filled in with garbage and flies from markets gave the following results:

	Kind of closet used in the house.									
	Pail.		Flush.		Public.		Total.		Percentage.	
	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.
Flies from garbage ¹	21	0	18	0	42	8	81	8	91.02	8.98
Flies from markets.....	0	0	0	0	21	0	21	0	100	0

¹ Including flies from houses in the vicinity thereof.

Considering the findings as a whole, we have 94.48 positive for *B. coli* and 5.52 per cent negative of samples of flies examined out of 507 samples submitted for examination. No mention of other micro-organisms is made as they were found absent. The kind of closet used in the house seems to influence in a certain way the results observed; thus, out of the total samples examined from houses wherein the pail system, flush system, and public closet are used, the results of the examination were as follows:

Pail:	Percentage.
Positive <i>B. coli</i>	100
Negative <i>B. coli</i>	0
Flush:	
Positive <i>B. coli</i>	94.54
Negative <i>B. coli</i>	5.46

Public:	Percentage.
Positive <i>B. coli</i>	98.59
Negative <i>B. coli</i>	6.41
Positive:	
Pail system	6.90
Flush system.....	44.38
Public closet	43.20
Negative:	
Pail system	0
Flush system	2.56
Public system	2.96
Total	100.00

The following two comprehensive tables are included for more information:

Flies caught from—	Waste disposal used in the place.						Total.		Per- cent- age.
	Pail.		Flush.		Public.				
	Pos. ¹	Neg. ¹	Pos. ¹	Neg. ¹	Pos. ¹	Neg. ¹	Pos. ¹	Neg. ¹	
Houses of patients or low lands or market.....			16		19		35		100
Neighboring houses 15 meters dis- tant ¹	6		27	2	67	6	100	8	92.59
15-50 meters ¹	2		52	6	44	4	98	10	90.74
50-100 meters ¹	13		60	5	46	4	119	9	92.96
100-150 meters ¹	11		23		15	1	49	1	98.00
150-200 meters ¹	2		18		9		29		100
200-250 meters ¹			10		4		14		100
250-up meters ¹	1		19		15		35		100
Total.....	35		225	13	219	15	479	28	94.48

¹ Result of examination for *B. coli*. Other micro-organisms were found absent.

² Distance in meters from patient's residence or from markets or low lands.

		Waste disposal used in the place.					
		Pail.		Flush.		Public.	
Group.		Pos.	Neg.	Pos.	Neg.	Pos.	Neg.
Typhoid fever	C	1		1	3	12	4
Do	D	1		12	6	1	
Do	G			9	2		
Do	J	2		51			
Do	M			1		7	
Do	O					12	
Do	Q					9	
Do	S	2		35		3	
Do	V	1		20		18	
Do	W					1	
Do	X			15		25	
Do	RM					4	
Dysentery	E	3		2		13	1
Do	F			20			
Do	H					13	2
Do	I			24	2		
Do	K					28	
Do	P			6			
Do	U	4		1		10	
Do	Z			10			
Low lands filled in with garbage	A	1		1		5	8
Do	B					5	
Do	R	16		12		16	
Do	T					10	
Do	Y	4		5		6	
Markets	L-N					21	
Total							

The results obtained from examinations of the plates or Petri dishes with culture media exposed to flies are shown consolidated in the following two tables:

Petri dishes exposed to flies

Plates exposed.	Exposure duration.					Result.			Closet.		
	5 minutes or less.	5-10 minutes.	10-20 minutes.	20-30 minutes.	30 minutes or more.	<i>B. coli</i> positive.	Typhoid positive.	Dysentery positive.	Pail.	Flush.	Public.
Patient's house or garbage place....	5	3	7	3	2	13				12	5
Neighborhood, 5-15 meters distant....	6	5	8	5	27	41				21	30
15-50 meters.....	21	6	13	6	12	40			5	38	15
50-100 meters.....	9	4	11	8	12	26				19	25
100-150 meters.....	2		1	1	1	5				3	2
150-200 meters.....											
200-250 meters.....			4	2	3	7				9	
250-300 meters.....	2					1				2	
300-350 meters.....											
350-400 meters.....					3	3				3	
400-450 meters.....			2		6	7				8	
Total number of plates....	45	18	46	25	66	143			5	115	77

Places where plates were exposed.	Kind of waste disposal used.							
	Pail.		Flush.		Public.		Total.	
	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.
1. Typhoid case and neighborhood			3	1	5	2	8	3
2. Typhoid case and neighborhood					4	2	4	2
3. Typhoid.			7	4			7	4
4. Typhoid					17	4	17	4
5. Typhoid			7	4			7	4
6. Dysentery case and neighborhood.	2		10	4	9	4	21	8
7. Dysentery			8	3			8	3
8. Dysentery No. 6.			6	5			6	5
9. Dysentery No. 7.			8	3	15	5	23	8
10. Dysentery	3				4	4	7	4
11. Market No. 8			8	3			8	3
12. Low lands and neighborhood			15	5	2		17	5
13. Low lands and neighborhood			10	1			10	1

The figures of the foregoing tables show quite a different percentage from the results obtained from direct examination of the flies (see Tables I-IV), while samples of flies show 94.48 per cent. of positives. We have only 72.58 positives per cent. of these plates. The reason, as I believe, is that, while in the former a good number of flies from a single source was collected and mixed together in a sample, in the latter we can say we

have the result of the examination of individual flies. Only one or two flies are allowed to soil the culture media and within a short period of time. The late results might, therefore, be taken as a fair percentage of contaminated flies in the city of Manila.

The facts as shown by our investigation are that out of 197 plates soiled by flies, 72.58 per cent. were positive for *B. coli* but negative for pathogenic micro-organisms (cholera, typhoid fever, and dysentery) and 27.42 per cent. for *B. coli*, cholera, typhoid fever, and dysentery.

A table showing the relation of fly contamination with the kind of closet used in the houses, regardless of whether the plates were exposed in the house of patients or in the markets or low lands filled in with garbage, is as follows:

	Kind of closet used in the place.						Total.	
	Pail.		Flush.		Public.			
	Positive.	Percent- age.	Positive.	Percent- age.	Positive.	Percent- age.	Positive.	Percent- age.
Plates exposed to flies.	5	100	82	71.30	56	72.73	143	72.58

In relation to the places where plates were exposed, the percentages of contamination are shown in the following table:

Places.	Pail.		Flush.		Public.		Total.	
	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.
A-Typhoid case and vicinity.	0	0	23.33	15.00	43.33	13.34	71.67	28.33
B-Dysentery case and vicinity.	5.38	0	34.40	16.43	30.11	13.98	69.89	30.11
C-Markets	0	0	72.73	27.27			72.73	27.27
D-Low lands and vicinity			75.76	18.18	6.06		81.82	18.18

Within the same group A, or B, or C, or D, the figures of positive plates exposed in houses using the same kind of water closet gave the following percentages:

Places.	Kind of closet used.					
	Pail.		Flush.		Public.	
	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.
Typhoid case and neighborhood.	0	0	65.38	34.62	76.47	23.53
Dysentery case and neighborhood.	100	0	68.09	31.91	68.29	31.71
Markets	0	0	72.73	27.27	0	0
Low lands and vicinity	0	0	80.65	19.35	100	0

SUMMARY OF FINDINGS

From the foregoing tables the following facts may be deduced:

1. Flies in every house taken as a group cause 94.48 per cent. fecal contamination.
2. Individual flies show contamination in 72.58 per cent. of them.
3. Flies in places where feces are disposed of by the pail system are all contaminated.
4. Flies in houses using a public water-closet are less contaminated.

AUTO-TEST ON THE ACTIVITY OF TUBERCULOSIS LESIONS (WILDBOLZ)

I. THEORY

Positive reactions obtained by the tuberculosis test (Pirquett, Mantoux, Stich) indicate a hyper-susceptibility of the body against tuberculin at the time that tuberculous antibodies are in circulation in the body. This hyper-susceptibility, once developed, tends to remain for some time after, even in the absence of an active tuberculin, and indicates also that infection has occurred for sometime before. No interpretation of activity of any tuberculous lesion is claimed for the present tuberculin.

The auto-test depends on the belief that, when there is an active tuberculous process anywhere in the body, there must be products of elimination and disintegration of the tubercle bacilli and of the process they excite. These products of active disintegration or antigen, or tuberculin-anti-tuberculin, are distributed in the blood stream where a part is held and made harmless by the defensive mechanism of the body forming the antibodies. The remaining part is removed thru the secretory organs—like the kidneys, intestines, skin, lacteals, etc. The existence of these antigens can be proved in the body secretions by the so-called auto-tests (urine, faeces, sweat, etc.) or in the blood stream by the auto-serum test by inoculating intradermally the said secretions or serum in the same person, and by taking advantage of the state of allergy of the skin of the person lodging any active tuberculous lesion.

II. REVIEW OF TITLE LITERATURE

Wildbolz described the auto-urine test as he carried it out in the Island Hospital, Berne, Switzerland. He evaporated the morning urine to 1/10 its volume and passed it thru filter paper saturated with 2 per cent. phenol. He injected intradermically three series of two injections each on the arm: two upper with 1/1,000 tuberculin, three to four cm. below this, with 1/10,000 tuberculin; the same distance below, two, with a minute amount of 1/10 evaporated urine. He reported tests on 200 persons. He concluded that the test may be depended upon to reveal the

tuberculous or non-tuberculous nature of the lesion and also disclose the activity of any tuberculous lesion. If the urine reaction persists after the clinical healing of the known process, he felt confident that there was some other active lesion elsewhere.

Lanz studied more than 300 cases with the auto-urine and auto-serum tests and came to the following conclusions: (a) a negative auto-urine test proves with all certainty that the patient is not tuberculous, (b) in all clinically positive cases of tuberculosis, both reactions (auto-serum and auto-urine) give positive results. In all non-tuberculous cases both reactions are negative. If the reaction turns out to be positive contrary to expectation, there is positively an undemonstrable but still active tuberculous process in the body. The reactions are the finest diagnostic medium for the discovery of an active tuberculous focus.

Miche has compared reactions between tuberculin and the auto-urine test thus: In 17 cases both reactions were positive, four were both negative, in four others the reaction with the urine extract was more pronounced in the very active cases and very weak in the cases with more favorable prognosis.

Imhoff, in Wildbolz's service, tried his auto-urine, the auto-serum, and Mantoux tuberculin test on 100 persons. The reactions were constantly negative in non-tuberculous persons and constantly positive whenever there was an active process. Certain persons with active tuberculous lesions, who do not respond to the auto-test, are said to be energetic; their urine, if injected into a known tuberculous person with positive auto-test, always gave positive reactions.

Offenbacher studied the auto-urine test in 20 persons with active tuberculosis. He found three with distinct redness, five with knot formation on the site of the injection, and eleven with no reaction at all. He states that these negative results were due to the fact that the urine did not have any or sufficient tuberculous antigen to elicit a positive auto-urine test. He stated further that a positive auto-urine test is, with a "certain possibility," a practical and useful symptom of any active pulmonary tuberculosis.

Gibson and Carrol tried the auto-urine test in the Meriden State Tuberculosis Sanatorium, Connecticut, to overcome the difficulties they were having in arriving at a definite diagnosis of tuberculosis among their children patients. Seven allergic cases, with positive sputum, six of which were of progressive tuberculosis, gave positive auto-urine test; one case was negative, considered clinically as an arrested case. In 24 allergic cases with negative sputum, negative results were obtained with five

cases considered as arrested, two non-tuberculous, and two as healthy persons; and positive results in 16 which presented definite signs of tuberculosis. In the energetic cases, or six with positive sputum, five reacted positive when tested on known tuberculous persons; and one with impaired renal functions gave negative auto-urine but positive auto-serum test. Of three energetic cases with negative sputum, two gave positive auto-urine but negative tuberculin and showed tuberculous lesions; one gave negative auto-urine in which no discoverable tuberculous lesion was found.

III

If the foregoing tests can be tried out in the Philippines and their value proved, we shall have contributed not a little to the tuberculosis problem. The tuberculosis wards of San Lázaro Hospital can be used to supply the material for the positive controls; while the patients in other wards can be used for the negative controls.

The preparation of the urine extract and the serum for the test can be done in the San Lázaro Hospital laboratory without much outlay of equipment or supplies.

The only danger recorded in these injections was the development of ulceration on the site of injection. The injection was intradermic and the ulceration involved only the outer layers of the skin so that there was no possibility of general infection or any report thereof. The ulceration was very small as only minute quantities of the urine were used.

To be of any value, the work should be continued for a period of at least six months so that at least 200 cases can be reported.

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TROPICAL SPRUE OR PSILOSIS

Bovaird reports 13 cases in America in the last 10 years; seven from China, two from the Philippines, two from Porto Rico, and one from Korea. Ages ranged from 37 to 57 years. Ten were in men, three in women. Two of them noted the first symptoms of the disease for months after their return to America under most favorable healing conditions. Bahr also reports two cases in Englishmen who developed the disease seven years and seventeen years, respectively, after repatriation.

Of the many theories of the causation of sprue, Bahr's belief is that the *Monilia Albicans* is the only one so far worthy of consideration. In Bovaird's 13 cases only one showed monilia in the stools. Bacteriologically, the stools showed no departures from the normal fecal flora.

The pathological anatomy is characterized by general wasting, with thinning of the epithelium of the gastro-intestinal tract and hyaline areas in the spleen (Russell) and some fatty infiltration of the liver.

Symptoms are well established: sore mouth, diarrhea with one to four bulky, light-colored, semi-fluid or grumous stools with much gas; emaciation, anemia, and exhaustion.

Clinical tests.—Twelve examinations of the gastric contents were made in 11 patients; six showed a total lack of free hydrochloric acid, one showed a decrease, and five gave practically normal readings.

The stools are bulky, pale gray, and are intermingled with gas. Bile pigments are present but are in the form of leucobilin (Blyth), a colorless compound. There is an unusual amount of neutral and fatty acids. In four patients total fats were 25 to 48 per cent of the dried faeces, (Normal, 20 per cent, Schmidt) of which 11 to 35 per cent. were neutral fat, and 75 per cent fatty acids. Fermentation tests of the stools were negative, although Bovaird admits that this may be due to faulty technique. The blood showed marked secondary anemia, hemoglobin ranging from 21 to 70 per cent. with color index under one. The Wassermann Test was negative in the 13 cases. Pancreatic ferments may or may not be present; the pancreas at

the post mortem examination was normal. Urine findings were negative.

Bovaird noted tetany as one of the complications. The treatment is dietetic, to consist mainly of fruits (strawberries, bael fruit) the tendency being to eliminate starches and giving proteins and fruits.—(*A Study of Tropical Sprue, or Psilosis* by David Bovaird, J. A. M. A. September 3, 1921, Vol. 77 No. 10, pages 753 to 758.)

MISCELLANEOUS

THE HEALTHMOBILE DURING THE RED CROSS WEEK

During the Red Cross Week, November 11-17, Dr. Felino Simpao of the Philippine Health Service, in conjunction with Dr. Basilio Valdez, Chairman of the Philippine Committee, conducted a series of illustrated lectures in different districts of the city to help swell the subscribers to the good cause.

TWO LEPERS PAROLED

Two lepers, who have undergone the two-year quarantine period necessary for the release, have been paroled by the Committee on the Diagnosis of Leprosy. Both of them received the chaulmoogra oil mixture of Dr. Mercado, and have proved negative continuously for the past two years. These men are to present themselves to the nearest health officer for examination every six months for two years more and then they will be given their complete freedom, provided that during that time they prove to be continuously negative.

SANITARY BADGES LOST

A number of badges used by the sanitary inspectors had been lost and for the purpose of saving the public, especially the owners of "tiendas de sari-sari" from exploitation by persons of questionable character, it has been decided to publish the number of the badges lost. They are as follows:

19, 67, 78, 116, 132, 139, and 172. Unauthorized persons exhibiting any of these badges should be reported to the Office of the Director, Philippine Health Service.

CHOLERA IN BULACAN

A cholera suspect was registered in the barrio of Lolomboy, Bocaue, Bulacan, who died on the tenth of this month. All the sanitary measures have been adopted in this case, including the vaccination of contracts of the residents of the place. Last year two-thirds of the inhabitants of this barrio were vaccinated with the anti-cholera vaccine and not a single case of cholera was registered during the entire year. Unfortunately, this case was one of the few that were not vaccinated against the disease.

FOOD-POISONING

From reports received at this Office, it has been learned that cases of gastro-intestinal intoxication with diarrhea, stomachache, cephalalgia, fever and chill have occurred caused by the eating of "hasa-hasa" fish the preceding night.

A memorandum order has been issued to all medical officers in charge of health stations in the city of Manila, with the request that strict

vigilance of markets be enforced in order that all fishes showing signs of decomposition, putrefaction, or unfitness for human consumption may be condemned and prohibited from sale, especially the kind of fish known as "hasa-hasa."

ALBAY BRANCH OF THE AMERICAN NATIONAL RED CROSS ORGANIZED

Dr. Shannon Richmond, District Health Officer of Albay, has informed the Director of the Philippine Health Service that at the meeting held in the office of the provincial governor, the Albay branch of the American National Red Cross was organized and the campaign for membership instituted at once.

TWO TONS OF CHAULMOOGRA OIL COMING

According to reports received from the Insular Purchasing Agent, two tons of chaulmoogra oil are due to arrive in Manila about December 15 on the steamship *Wolverine State*. Another shipment by the steamship *Bombay Maru* is expected soon. At the present time there are 100 kilos of the oil ready for delivery.

THE COUNCIL OF HYGIENE AT SAN LAZARO

The Council of Hygiene, composed of Dr. Fernando Calderon, President, Dr. Jose Albert, Dr. Gervasio Ocampo, Dr. Benito Valdez, Members, and Dr. Leoncio Lopez Rizal, Secretary, visited the leper department of San Lazaro Hospital recently. They are satisfied with the progress of the work. Of the 21 negatives now undergoing quarantine there, eight received the Mercado mixtures, one crude chaulmoogra oil, six ethyl ester, one gynocardate A, one gynocardate D, and four sodium morrhuate.

INTER-BUREAU VOLLEYBALL GAMES

The series of inter-bureau games was begun recently by the Bureau of Prisons and the Philippine Health Service. In the first game, the Bureau of Prisons scored 1 and the Philippine Health Service 21. In the second game the Bureau of Prisons scored 0 and the Philippine Health Service 21. The winning team in this series will compete for the coming Carnival championship.

BOARD OF MASSEURS TO HOLD EXAMINATION

The Board of Masseurs will hold an examination for candidates on December 15. Prospective candidates should send a written application to the Director of Health.

GENERAL STATISTICS

[Unless otherwise stated these statistics are for the month of November, 1921.]

ESTIMATED POPULATION OF THE CITY OF MANILA FOR 1921.

BY NATIONALITIES.

Nationality.	Population.
Americans	3,134
Filipinos	287,408
Spaniards	1,955
Other Europeans	1,126
Chinese	17,856
All others	2,186
Total	293,665

BY DISTRICTS.

Health district.	Population.
No. 1, Intramuros	36,108
No. 2, Meisic	100,587
No. 4, Sampaloc	47,662
No. 5, Tondo	77,863
No. 6, Paco	31,445
Total	293,665

METEOROLOGICAL REPORT FOR MANILA CENTRAL OBSERVATORY DEDUCED FROM HOURLY OBSERVATIONS, NOVEMBER, 1921.

Date.	Pres- sure mean. ¹	Temperature.						Relative humidity.					
		In shade. ²				Underground.		Mean.	Daily mean maxi- mum.	Day.	Daily mean mini- mum.	Day.	
		Absolute maxi- mum.	Day.	Absolute mini- mum.	Day.	0.50 m.							
						8 a. m.	2 p. m.						
		°C.		°C.		°C.	°C.	Per cent.	Per cent.		Per cent.		
1-10.....	mm.	25.7	33.5	1	22.2	28.6	28.8	84.3	92.2	3	74.1	2	
11-20.....	759.00	25.5	32.2	14	21.7	27.7	27.8	88.2	93.3	11	82.9	20	
21-30.....	757.59	25.3	32.6	28	21.6	27.4	27.6	83.5	92.9	23	70.7	25	
	759.34												

Date.	Wind.				Atmidometer (open air). ²		Sunshine.		Rainfall.			
	Prevail- ing di- rection.	Velocity.			Daily maxi- mum.	Day.	Total.	Daily maxi- mum.	Day.	Total.	Rainy days.	
		Total.	Daily total maxi- mum.	Day.								Total.
		Km.	Km.		mm.		mm.	km.		mm.		
1-10.....	NE	1,416.0	320.0	10	20.1	1	22-10	9-00	1	44.4	6	
11-20.....	SE	1,642.0	633.5	11	11.8	20	24-10	5-50	20	149.7	7	
21-30.....	NE	1,904.0	344.0	26	21.4	24	28-25	8-20	28	94.6	5	

¹ Corrected for instrumental error and for temperature and reduced to sea level. Correction to standard gravity, -1.72 mm.
² These values are taken from instrument mounted in the Observatory Park, 1.5 meters above ground.

BIRTH REPORTED IN THE CITY OF MANILA.

[Stillbirths not included.]

Nationality.	Male.	Female.	Total.	Annual birth rate per 1,000.
Americans.....	3	5	8	31.08
Filipinos.....	616	570	1,186	54.00
Spaniards.....	6	3	9	56.05
Other Europeans.....	2	2	4	43.25
Chinese.....	28	23	51	34.77
All others.....	4	3	7	38.99
Total.....	659	606	1,265	52.44

BIRTHS, BY DISTRICTS.

Health districts.	Legitimates.			Illegitimates.			Grand total.	Annual birth rate per 1,000.
	Male.	Female.	Total.	Male.	Female.	Total.		
No. 1, Intramuros.....	119	93	212	6	6	12	224	75.53
No. 2, Meisic.....	101	86	187	7	5	12	199	24.09
No. 4, Sampaloc.....	86	83	169	12	8	20	189	48.29
No. 5, Tondo.....	247	247	494	13	15	28	522	81.62
No. 6, Paco.....	62	61	123	6	2	8	131	50.72
Total.....	615	570	1,185	44	36	80	1,265	52.44

Number of births attended by physicians, living, 295; stillbirths, 19.

Number of births attended by midwife, living, 118; stillbirths, 3.

Number of births attended by family, living, 862; stillbirths, 17.

NUMBER OF DEATHS AND DEATH RATE PER 1,000 AMONG RESIDENTS IN THE CITY OF MANILA, BY NATIONALITIES.

[Stillbirths not included.]

Nationality.	Male.	Female.	Total.	Annual death rate per 1,000.
Americans.....	2		2	7.77
Filipinos.....	299	237	536	24.40
Spaniards.....	1		1	6.23
Other Europeans.....				
Chinese.....	22	2	24	16.86
All others.....	8		8	16.71
Total and average.....	327	239	566	23.47

TOTAL DEATHS BY SOCIAL CONDITION, INCLUDING TRANSIENTS.

Social condition.	Male.	Female.
Married.....	102	67
Divorced.....		
Widowed.....	27	52
Single.....	254	148
Conditions not stated.....	2	
Total.....	385	267
Grand total.....	652	

Stillbirths..... 39
 Number of deaths with medical attendance..... 274
 Number of deaths without medical attendance..... 378

DEATHS BY AGES IN THE CITY OF MANILA.

[Stillbirths not included.]

Ages.	Residents.		Transients.		Total.
	Male.	Female.	Male.	Female.	
Under 30 days.....	43	23	1		67
30 days to under 1 year.....	79	50	17	8	154
1 year to under 2 years.....	27	19	2	2	50
2 years to 4 years.....	17	15	1	4	37
5 years to 9 years.....	9	5		1	15
10 years to 14 years.....	5	1	1		7
15 years to 19 years.....	7	6	4	4	21
20 years to 29 years.....	31	28	6	1	66
30 years to 39 years.....	21	15	6	2	44
40 years to 49 years.....	33	22	4		59
50 years to 59 years.....	21	9	5	3	38
60 years to 69 years.....	12	18	1	1	32
70 years to 79 years.....	13	8	4	1	26
80 years to 89 years.....	8	7	4		19
90 years to 99 years.....	1	12		1	14
100 years and over.....		1			1
Age not stated.....					
Total.....	327	239	56	28	* 650

* Of this total, 2 males, permanent, residence unknown not included.

DEATHS AND DEATH RATE PER 1,000, BY DISTRICTS, INCLUDING TRANSIENTS.

[Stillbirths not included.]

Health districts.	Deaths.	Annual death rate per 1,000.
No. 1, Intramuros.....	105	35.40
No. 2, Meisic.....	112	13.56
No. 4, Sampaloc.....	97	24.78
No. 5, Tondo.....	271	42.37
No. 6, Paco.....	67	25.94
Total.....	652	27.03

NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG RESIDENTS IN THE CITY OF MANILA.

[Stillbirths not included.]

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
I. General diseases.													
1. Typhoid fever.					6	6							15
4. Malaria.					1	1							1
10. Influenza.					1	1							1
12. Asiatic cholera.					1	1							1
14. Dysentery.					3	2							6
24. Tetanus.					3	2							3
27. Beriberi.					29	19							61
28. Tuberculosis of the lungs.					47	54							105
29. Acute miliary tuberculosis.					1	1							1
30. Tuberculosis meningitis.					3	3							6
31. Abdominal tuberculosis.					1	1							2
35. Disseminated tuberculosis.					1	1							2
36. Rickets.					1	1							1
38. Gonococcus infection.					1	1							1
39. Cancer and other malignant tumors of the buccal cavity.					1	1							1
40. Cancer and other malignant tumors of the stomach, liver.					1	1							1
42. Cancer and other malignant tumors of the female genital organs.					1	1							1
45. Cancer and other malignant tumors of other organs or of organs not specified.					1	2							3
48. Chronic rheumatism and gout.					1	1							2
50. Diabetes.					1	1							1
55. Other general diseases.					1	1							1
56. Alcoholism (acute or chronic).					1	1							2
II. Diseases of the nervous system and of the organs of special sense.													
61. Simple meningitis.					6	10							16
69. Other diseases of the spinal cord.					7	3							11
64. Cerebral hemorrhage, apoplexy.					1	1							1
66. Paralysis without specified cause.					1	1							1
68. Other forms of mental alienation.					1	1							2
71. Convulsions of infants (under 5 years of age).					1	2							2

[illegible]

X. Malformations.

150. Congenital malformations (stillbirths not included):
(2). Congenital malformations of the heart.....

XI. Diseases of early infancy.

151. Congenital debility, icterus and sclerema:

(1) Premature birth (not stillborn).....

(2) Congenital debility...

1152. Other diseases peculiar to early infancy:

XII. Old age.

154. Senility.

XIII. Affections caused by external causes.

169. Accidental drowning.

172. Traumatism by fall.

185. Fractures (cause not specified).

XIV. Ill-defined diseases.

189. Cause of death not specified or ill-defined.

Total.....	2	299	237	1	22	2	3	566
Grand total.....	2	536		1	24		3	566

V. Diseases of the digestive system.

102. Ulcer of the stomach.....	1				1
104. Diarrhoea and enteritis (under 2 years).....		1			1
105. Diarrhoea and enteritis (2 years and over).....		1			1
108. Appendicitis and typhlitis.....	1				1
113. Cirrhosis of the liver.....		1			1
117. Simple peritonitis (nonpuerperal).....			1		1

VI. Nonteneral diseases of the genito-urinary system and annera

120. Bright's disease.....		1	2		3
123. Calculi of the urinary passages.....		2			2
124. Diseases of the bladder.....		1			1

VIII. Diseases of the skin and of the cellular tissue.

144. Acute abscess.....		1			1
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XI. Diseases of early infancy.

151. Congenital debility, icterus and sclerema: (2) Congenital debility.....		1	1		2
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XII. Old age.

154. Senility.....		3			3
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XIII. Affections caused by external causes.

169. Accidental drowning.....				1	1
186. Fractures (cause not specified).....		2			2
Total.....	1	50	28	1	84
Grand total.....	1	78	2	1	84

INFANT MORTALITY.

[Stillbirths not included.]

Causes of death.	Under 24 hours.	24 hours to under 36 hours.	36 hours to under 48 hours.	48 hours to under 14 days.	14 days to under 1 year.	Total.
Acute dilatation of the heart.....				1		1
Beriberi infantile.....				4	44	48
Bronchitis, acute.....					49	49
Bronchitis, chronic.....					6	6
Broncho-pneumonia.....					12	12
Broncho-pneumonia, acute.....					1	1
Broncho-pneumonia, severe.....					4	4
Broncho-pneumonia, tuberculous.....					1	1
Congenital debility.....	15	1		24	14	54
Congenital malformation of head.....	1					1
Convulsions, infantile.....					1	1
Eclampsia, infantile.....					1	1
Enteritis, acute.....					3	3
Gastro-enteritis, acute.....					2	2
Gastro-enteritis, chronic.....					2	2
Gonorrhoea, hemorrhagic cystitis.....				1		1
Hemorrhage, umbilical.....					1	1
Hypertrophy and dilatation of the right heart.....					1	1
Ileocolitis, acute, severe.....					1	1
Intussusception.....					1	1
Marasmus.....					5	5
Meningitis, acute.....					9	9
Meningitis, cerebral.....					2	2
Meningitis, simple.....					2	2
Meningitis, tuberculous.....					1	1
Myocarditis, acute.....					1	1
Nephritis, acute.....					2	2
Nephritis, chronic.....					1	1
Omphalitis, gangrenous, hemorrhage in- ternal.....				1		1
Prematurity.....	2					2
Purpura, hemorrhagic.....				1		1
Tetanus, umbilical.....				2		2
Cause of death not specified or ill-defined.....	1					1
Total.....	19	1		34	167	221

ANTI-PLAGUE CAMPAIGN IN THE CITY OF MANILA.

Number of spring traps set.....	30,782
Number of rats caught with spring traps.....	4,111
Number of wire traps set.....	394
Number of rats caught by wire traps.....	2
Number and kind of baits (coconuts).....	31,176
Number of poison portions placed.....	75,259
Number of rats found poisoned.....	380
Number of rats killed by clubs and other weapons.....	1,093
Number of rats found dead from other causes.....	626
Total number of rats otherwise caught, found dead or killed.....	6,212
Total number of rats sent to the laboratory for examination.....	6,212
Total number of rats found positive for plague.....	0

**TYPHOID AND PARATYPHOID FEVER REPORTED DURING THE MONTH OF
NOVEMBER, 1921, CITY OF MANILA, RESIDENTS ONLY.**

CASES.

Reported.		Health districts.										Total.
		No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
		Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:												
Male.....	4	0	7	0	1	0	6	1	5	0	24	
Female.....	3	0	6	0	3	0	5	2	1	0	20	
Dead:												
Male.....	0	0	1	2	0	0	2	0	0	1	6	
Female.....	0	1	0	0	0	0	0	1	0	0	2	
Total:												
Male.....	4	0	8	2	1	0	8	1	5	1	30	
Female.....	3	1	6	0	3	0	5	3	1	0	22	
Grand total..	7	1	14	2	4	0	13	4	6	1	52	

DEATHS.

Sex.		Health districts.										Total.
		No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
		Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....		1	0	3	1	0	0	3	0	0	1	9
Female.....		1	1	0	0	0	0	1	1	2	0	6
Total.....		2	1	3	1	0	0	4	1	2	1	15

Total cases reported within the month.....	70
Provincial cases reported in the city of Manila.....	18
Foreign cases reported in the city of Manila.....	0
City cases (residents only).....	52
Total deaths reported within the month.....	18
Deaths among provincial cases reported in Manila.....	3
Deaths among foreign cases reported in Manila.....	0
Deaths among city cases.....	15
Total confirmed as typhoid fever.....	64
Widal reaction.....	44
Blood culture.....	1
Autopsy.....	0
Clinically positive.....	19
Cases confirmed as paratyphoid fever.....	4
Cases not confirmed.....	2

Paratyphoid..... Province: 2 cases, 1 death.
City: 2 cases, 0 death.¹

¹ All included in the above table.

**DYSENTERIES REPORTED DURING THE MONTH OF NOVEMBER, 1921, CITY OF
MANILA, RESIDENTS ONLY.**

CASES.

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	2	0	0	0	3	0	1	0	2	0	8
Female.....	2	0	2	0	2	0	0	1	0	0	7
Dead:											
Male.....	0	0	0	0	0	2	0	0	1	1	4
Female.....	0	0	0	0	0	1	0	1	0	0	2
Total:											
Male.....	2	0	0	0	3	2	1	0	3	1	12
Female.....	2	0	2	0	2	1	0	2	0	0	9
Grand total..	4.	0	2	0	5	3	1	2	3	1	21

DEATHS.

Sex.	Health districts.										Total
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	0	0	0	0	0	2	1	0	1	1	5
Female.....	0	0	0	0	0	1	0	1	0	0	2
Total.....	0	0	0	0	0	3	1	1	1	1	7

Total cases reported within the month.....	28
Provincial cases reported in the city of Manila.....	7
City cases (residents only).....	21
Total deaths reported within the month.....	7
Deaths among provincial cases reported in the city of Manila.....	0
Deaths among city cases.....	7
Reported as:	
Amœbic dysentery.....	3
Acute dysentery.....	5
Bacillary dysentery.....	4
Chronic dysentery.....	1
Dysentery.....	14
Not dysentery.....	1
Total.....	28

**SUSPECT CHOLERA REPORTED DURING THE MONTH OF NOVEMBER, 1921, CITY
OF MANILA, RESIDENTS ONLY.**

CASES.

Health districts.											
Reported.	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		Total.
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	0	0	2	0	1	0	0	0	0	0	3
Female.....	0	0	1	0	0	0	0	0	0	0	1
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total:											
Male.....	0	0	2	0	1	0	0	0	0	0	3
Female.....	0	0	1	0	0	0	0	0	0	0	1
Grand total..	0	0	3	0	1	0	0	0	0	0	4

DEATHS.

Health districts.											
Sex.	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		Total.
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	0	0	1	0	0	0	0	0	0	0	1
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total.....	0	0	1	0	0	0	0	0	0	0	1

Total cases reported within the month.....	4
Provincial cases reported in the city of Manila.....	0
Foreign cases reported in the city of Manila.....	0
City cases (residents only).....	4
Cases confirmed as cholera.....	3
Cases not confirmed (found negative).....	1
Total deaths reported within the month.....	1
Deaths among provincial cases reported in the city of Manila.....	0
Deaths among foreign cases reported in Manila.....	0
Deaths among city cases.....	1
Deaths confirmed as cholera.....	1
Deaths not confirmed.....	0
Cholera carriers: 2 living, 0 death.	

DIPHTHERIA REPORTED DURING THE MONTH OF NOVEMBER, 1921, CITY OF MANILA, RESIDENTS ONLY.

CASES.

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	0	0	0	0	0	0	0	0	1	0	1
Female.....	2	0	0	0	1	0	0	0	1	0	4
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total:											
Male.....	0	0	0	0	0	0	0	0	1	0	1
Female.....	2	0	0	0	1	0	0	0	1	0	4
Grand total..	2	0	0	0	1	0	0	0	2	0	5

DEATHS.

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total.....	0	0	0	0	0	0	0	0	0	0	0

Total cases reported within the month.....	5
Provincial cases reported.....	0
City cases reported.....	5
City cases confirmed as diphtheria.....	3
City cases not confirmed.....	2
Total deaths reported within the month.....	0
City deaths confirmed.....	0
Deaths among provincial cases.....	0
Deaths among provincial cases.....	0
Diphtheria carriers: None.	

OTHER COMMUNICABLE DISEASES REPORTED IN THE CITY OF MANILA DURING THE MONTH OF NOVEMBER, 1921, RESIDENTS ONLY.

Diseases.	Cases.	Deaths.
Smallpox.....	0	0
Variceloid.....	0	0
Varicella.....	16	0
Measles.....	15	0

NOTE.—Also reported in the city 10 provincial cases of measles.

REPORT ON THE DISTRIBUTION OF ASSORTED SERA AND VACCINES.

Sera and vaccines.	On hand Nov. 1, 1921.	Received during the month.	Total to be account- ed for.	Distributed during the month.	Remaining at the end of the month.
Anti-cholera vaccines (c.c.)	7,700	36,600	44,300	35,940	8,360
Anti-diphtheric serum (units)	747,000		747,000	100,000	647,000
Anti-dysentery serum (ampoules)	20		20		20
Anti-tetanic serum (units)	10,000	105,000	115,000	115,000	
Dried vaccine virus (units)	34,000	5,500	39,500	36,600	2,900
Fresh vaccine virus (units)	78,400	200,000	278,400	188,200	90,200
Gonococcus vaccine (ampoules)		60	60	60	
Typhoid and paratyphoid vaccines (am- poules)	3,280	4,000	7,280	1,680	5,600

SMALLPOX VACCINATIONS IN THE CITY OF MANILA, DURING THE MONTH OF NOVEMBER, 1921.

Health districts.	Total vaccina- tions.	Total inspec- tions.	Positive.	Negative.
No. 1, Intramuros	1,216	523	437	86
No. 2, Meisic	3,257	463	325	138
No. 4, Sampaloc	1,502	399	281	118
No. 5, Tondo	1,911	516	399	117
No. 6, Paco	888	210	143	67
Total	8,774	2,111	1,585	526

CONSOLIDATED CHOLERA VACCINATIONS FOR THE MONTH OF NOVEMBER IN THE CITY OF MANILA.

Districts.	Number of persons vaccinated.								Total
	Males.				Females.				
	Double injections.		Single injections.		Double injections.		Single injections.		
	A.	C.	A.	C.	A.	C.	A.	C.	
No. 1, Intramuros			76	3			42	12	133
No. 2, Meisic			2,251	24			1,042	23	3,340
No. 4, Sampaloc			290	30			531	20	871
No. 5, Tondo			162	59			274	59	554
No. 6, Paco			398	358			412	317	1,485
Total			3,177	474			2,301	431	6,383

NOTE.—A, means adults; C, children.

CONSOLIDATED TYPHOID VACCINATIONS FOR THE MONTH OF NOVEMBER IN THE CITY OF MANILA.

Districts.	Number of persons vaccinated.				Total.
	Males.		Females.		
	Adults.	Children.	Adults.	Children.	
No. 1, Intramuros.	174	24	157	47	402
No. 2, Meisic.	993	22	208	27	1,250
No. 4, Sampaloc.	43	16	48	31	138
No. 5, Tondo.	90	17	125	60	292
No. 6, Paco.	65	52	52	34	203
Total.	1,365	131	590	199	2,285

**CONSOLIDATED CHOLERA VACCINATION REPORTED FROM THE PROVINCES FOR
THE MONTH OF NOVEMBER, 1921.**

Provinces.	Week ending 5th.		Week ending 12th.		Week ending 19th.		Week ending 26th.		Total.	
	A.	C.	A.	C.	A.	C.	A.	C.	A.	C.
Abra ¹			55	33	112	32			167	65
Albay.....	660	259	442	252	613	357	511	271	2,226	1,139
Bohol.....	198	543							198	543
Cagayan ¹	313	349	431	403					744	752
Cebu.....	328	3	263	192	58				649	195
Ilocos Sur ¹	416	173	482	130	388	142	438	164	1,724	609
Iloilo.....	37	56	77	65	132	177			246	298
Laguna.....					50	121	277	89	327	210
Lanao.....					46	10			46	10
La Union ¹	394	286	336	263	306	227	437	298	1,473	1,074
Marinduque.....			121	171					121	171
Mindoro.....							101	73	101	73
Misamis ¹	91	76							91	76
Nueva Vizcaya.....			193	109					193	109
Oriental Negros ¹	168	325	242	170					410	495
Pampanga.....	114	57	77	19	64	157	31		286	233
Pangasinan.....	248	202	853	88	42	10	290	597	1,433	897
Rizal.....	167	39							167	39
Romblon ¹							123	94	123	94
Tayabas.....	243	3							243	3
Total.....	3,377	2,371	3,572	1,895	1,811	1,233	2,208	1,586	10,968	7,085

¹ Report not complete.² Monthly report.

NOTE.—A, means adults; C, children.

Other provinces report not yet received.

TOTAL VACCINATIONS IN THE PROVINCES FOR THE YEAR, 1921.*

Provinces.	Vaccina- tions.	Inspec- tions.	Positive.	Negative.
Abra.....	10,977	9,938	5,869	4,069
Albay.....	51,032	37,078	26,487	10,591
Antique.....	12,631	11,827	7,789	4,038
Bataan.....	8,878	8,635	5,916	2,719
Batanes.....	3,346	3,184	1,782	1,402
Batangas.....	36,680	12,030	8,765	3,265
Bohol.....	43,571	38,590	24,890	13,700
Bulacan.....	35,685	23,423	17,603	5,820
Cagayan.....	15,394	10,814	7,028	3,786
Camarines Norte.....	740	512	235	277
Camarines Sur.....	49,858	41,543	31,433	10,110
Capiz.....	39,209	38,271	29,411	8,860
Catanduanes.....	8,123	5,896	4,026	1,870
Cavite.....	26,692	23,475	16,465	7,010
Cebu.....	258,328	177,044	97,786	79,258
Culion Leper Colony.....	368	361	195	166
Ilocos Norte.....	21,419	18,263	8,621	9,642
Ilocos Sur.....	43,769	31,865	19,772	12,093
Iloilo.....	83,566	50,231	38,721	11,510
Isabela.....	5,602	4,969	2,228	2,741
Laguna.....	25,165	23,039	16,066	6,973
La Union.....	78,778	52,340	33,961	18,379
Leyte.....	144,131	77,238	53,804	23,434
Marinduque.....	13,140	10,630	6,976	3,654
Masbate.....	2,187	2,187	1,398	789
Mindoro.....	7,997	6,633	3,321	3,312
Mountain Province.....	34,719	25,740	17,864	7,876
Nueva Ecija.....	175,603	99,450	65,616	33,834
Nueva Vizcaya.....	2,999	2,819	2,236	583
Occidental Negros.....	33,663	25,312	15,843	9,469
Oriental Negros.....	34,611	29,201	20,947	8,254
Palawan.....	753	494	160	334
Pampanga.....	31,235	17,361	11,851	5,510
Pangasinan.....	290,927	247,697	146,222	101,475
Rizal.....	30,323	24,044	15,565	8,479
Romblon.....	38,431	25,660	16,095	9,565
Samar.....	10,695	5,822	3,789	2,033
Sorsogon.....	142,034	96,615	61,480	35,135
Tarlac.....	9,895	9,555	6,361	3,194
Tayabas.....	27,912	23,714	16,595	7,119
Zambales.....	12,568	11,554	8,342	3,212
Total.....	1,913,634	1,365,054	879,514	485,540

* From reports received up to November, 1921.

**CONSOLIDATED TYPHOID VACCINATIONS REPORTED FROM PROVINCES FOR THE
MONTH OF NOVEMBER.**

Provinces.	Week ending 5th.		Week ending 12th.		Week ending 19th.		Week ending 26th.		Total.	
	A.	C.	A.	C.	A.	C.	A.	C.	A.	C.
La Union.....	46	.....	81	27	58	8	.....	.....	185	35
Total.....	46	.....	81	27	58	8	.....	.....	185	35

NOTE.—A, means adults; C, children.

**SMALLPOX REPORTED FROM THE PROVINCES, FOR THE MONTH OF
NOVEMBER, 1921.**

Provinces and towns.	Cases.	Deaths.
Bukidnon:		
Tankulan.....	17	8
Total.....	17	8

**CHOLERA REPORTED FROM THE PROVINCES, FOR THE MONTH OF
NOVEMBER, 1921.**

No cases nor deaths reported.

THE GOVERNMENT OF THE PHILIPPINE ISLANDS
DEPARTMENT OF PUBLIC INSTRUCTION

MONTHLY BULLETIN
OF THE
PHILIPPINE HEALTH SERVICE

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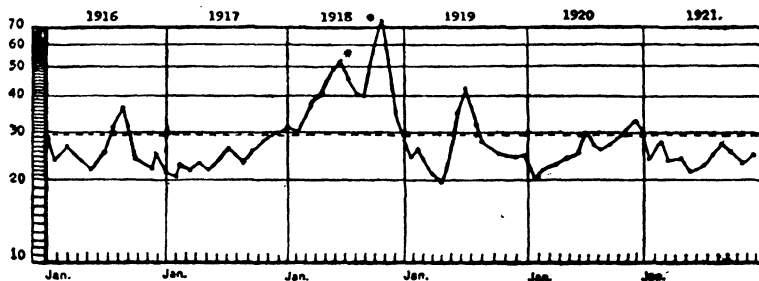
The care of the public health is the first duty of the statesman.—DISRAELI.



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3. Health Activities in the Provinces of Sulu, 1915-1920, inclusive.
4. Selected Appeals to Health Officers.
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ANNUAL DEATH RATES BY MONTH, CITY OF MANILA



• Influenza

----- Average death rate for the last five years.

MANILA
BUREAU OF PRINTING
1921

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IMPORTANCE OF BIRTH OF REGISTRATION

In our Decalogue on Health (Bulletin for September, 1921), we placed, as the first requisite:

I.—INSIST ON PROMPT AND COMPLETE BIRTH REGISTRATION

- (a) To prove the age.
- (b) To show the citizenship.
- (c) To prove the right to vote and to be elected.
- (d) To apply for an employment.
- (e) To prove the right to an inheritance.
- (f) To get married.
- (g) To obtain passports.
- (h) To prove the legitimacy or illegitimacy of a person.
- (i) To enter in a college or university and obtain any degree thereof.
- (j) To comply with the requirements in any court.

MONTHLY BULLETIN
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FAIR BUT NOT LIBERAL

**THE BUDGET FOR 1922 WITH REGARD TO THE PHILIPPINE
HEALTH SERVICE**

By M. TIANCO,

Chief, Administrative Office, Philippine Health Service

On December 8, 1921, Governor-General Wood submitted for the consideration and approval of the Philippine Legislature the budget of the Insular Government for 1922. In this budget, the budget makers have shown once more a marked interest for our public health activities.

Ex-Governor-General Harrison, in submitting the budget for 1921 to the Legislature, said, "The protection of the public health so intimately connected with the growth of our population calls for augmented efforts. * * * Pursuant to the policy of the administration of giving preferential attention to education, public health * * * a considerable portion of the proposed appropriations are intended for these services."

Again, the special message of Governor-General Wood in connection with the budget for 1922 contains this statement: "Another cause of increased expenditure is the determination of the Government to do everything possible to stop the avoidable waste of life thru an extension of the activities of the Health Service."

The following which shows the relative position of the proposed expenditures for the Health Service as compared with the appropriation for other activities of the Government will give

an idea of the extent of the policy of the Government to give preferential attention to public health:

Year 1921.		Year 1922.	
Activities.	Share in the budget.	Activities.	Share in the budget.
	<i>Per cent.</i>		<i>Per cent.</i>
Public education	21.7	Public education	21.7
Industrial operation	17.6	Industrial operation	12.6
Development of commerce	6.9	Public health	7.7
Public health	6.7	Public development	7.1
Law and order	6.6	Law and order	6.9
Development of agriculture	6.8	Development of commerce	6.5
Corporate investments	4.6	Roads and bridges	5.2
Public development	4.1	Development of agriculture	4.7
Roads and bridges	3.9	Other minor items	3.2
Emergency service (P8,000,000)	3.6	Emergency service	2.7
Other economic development (P2,971,669)	3.6	Executive direction and control (P1,884,521)	2.6
Other minor items	3.4	Other economic development (P1,877,095)	2.6
Executive direction and control	3.3	Legislation (P1,870,467)	2.6
Judiciary	2.4	Adjudication	2.5
Revenue collection	2.3	Investments	2.4
Legislation	2.0	Revenue collection	2.2
Public correction	1.8	Public correction	1.4

It will be noted that public health in the above list shares conspicuously in both budgets and while it stands fourth for 1921, in 1922 it occupies the third place in the allotments. The share of the Health Service in both budgets is 6.7 per cent and 7.7 per cent, respectively. While the difference in favor of the 1922 budget is only 1 per cent, still same is very significant if an analysis of the actual amount allotted for both years is to be made. The total of the budget for 1921 was ₱83,549,778 and for 1922 is ₱72,538,593. The allotment for the Philippine Health Service for 1921 was ₱3,058,828 and that pertaining to 1922 is ₱2,965,012; these means that the total of the budget for 1922 is 86.8 per cent of the total of the budget for 1921, and the proposed expenditures for the Philippine Health Service for 1922 is 97 per cent of those for 1921. It will be noted that while there is a decrease of 13.2 per cent of the total proposed expenditures for the Insular Government for 1922 as compared with those for 1921, only a reduction of less than 3 per cent is suffered by the Health Service. In the above comparison the ₱100,000 appropriated for leper treatment, Act No. 2978, have not been added to the budget for 1921 nor to the proposed expenditures for the Health Service corresponding to this year. If this be considered, the reduction of the allotment for the Philippine Health Service for 1922 as compared with the total appropriation for 1921 amounts to ₱188,816; but despite this reduction, the percentage of the amount proposed for 1922 is higher by 1 per cent than that for 1921 in relation with the total of the budget. Again, the reduction shown above is only nominal

because during the course of the present year the appropriation of this Service has been reduced and only ₱2,853,384 has been made available. Therefore, the proposed expenditures for 1922 for the Health Service is, in fact, larger by ₱111,678 than that available for the present year. This increase is explained in the budget as follows:

Under salaries and wages the amounts suppressed by the Emergency Board are again introduced for vaccinators (₱46,800) and for physicians and temporary employees (₱17,260), and, besides, a larger number of employees and laborers are provided for the Culion leper colony. The Health Service is proposing to display more activity in the matter of segregating lepers and applying treatment more extensively. Hence the increases in amount of the various items: under 'miscellaneous services' to repair and build cottages in concentration camps for lepers in the provinces; under 'freight, express, and delivery service' for the transportation of medicines, foodstuffs and other materials to Culion; under 'treatment of leprosy' for salaries of surgeons, chemists, nurses and helpers, their traveling expenses and per diems while in Culion, instruments, medicines and drugs; under 'contributions and gratuities' on account of the larger number of lepers (700) more who should be awarded gratuities in Culion; under 'illumination and power service' on account of the higher rates charged for electric current and on account of a larger consumption; under "traveling expenses of persons not Government employees," on account of the transportation of lepers and relatives who may visit them. Likewise, a larger amount is provided for 'traveling expenses of personnel' on account of the larger number of vaccinators that will be employed during the next year and also in order to allow health officers to make the adequate inspections of their districts and to enable them to carry out sanitary educational propaganda. The amount of ₱2,000 is provided to pay the value as per contract of a private lot in Chindonan island which is included in the Culion reservation. The aid to the special provinces of Mindanao and Sulu has been increased this year with an additional amount of ₱16,000 granted by the Emergency Board. A little increase is further asked for this item in 1922 in order to cover the expenses incident to the nurses' school in Zamboanga.

The details of the proposed expenditures for 1922 for the Health Service as submitted compare favorably with the detailed amounts available for the present year with but few exceptions. As a whole, they are only fair, but considering the efforts of the administration for imperative economy, they can be considered liberal.

We, who have had opportunity to discuss with the budget makers the various details of the proposed allotment for the Health Service for 1922, can openly give testimony as to the care and conscientiousness with which each item has been arrived at, as well as to their sincere regret when our request for more liberal amounts could not be granted, on account of the incompatibility with the imperative economy which necessarily

had to be accomplished. For this reason, we appreciate the more deeply the good will which they had shown to us despite their trying position.

In passing, we will permit ourselves to rectify the information, which is only a mere clerical error, contained in the explanatory notes of the allotment for the Service that vaccination against "typhus" have been made. In fact, said vaccination have been made against *typhoid fever*.

RÉSUMÉ OF SANITARY PROGRESS IN THE PHILIPPINE ISLANDS, 1904-1920

By J. P. BANTUG, M. D.,

*Senior Medical Inspector, Philippine Health Service
Manila, P. I.*

GENERAL MORTALITY

The consensus of opinion of demographers the world over with reference to the comparative study of mortality statistics is that the larger the number of figures studied, the nearer to the truth are the results obtained. The variation from one year to another may be influenced by a variety of factors, not the least of which is the element of chance. The year 1913 may be taken as an instance, in which the mortality was exceptionally low all the world over. This, however, is rather misleading. In making a comparative mortality survey, therefore, the average of each five-year period has been taken into account. The mortality for the last quinquennium, as may be seen below, is comparable with the first, notwithstanding the fact that during 1918, the great pandemic of influenza occurred which considerably raised the mortality rate throughout the world.

Year.	Rate per 1,000 inhabitants.
1904-1908	26.79
1909-1913	23.85
1914-1918	25.80

After the pandemic of influenza in 1918, the general mortality rate has considerably decreased, and this diminution was due in a large measure to the willingness of the people to coöperate with the health authorities in every particular, and in part also to the better care of the sick, the knowledge of the nature and prevention of dangerous communicable diseases, and improved methods of treatment.

Up to 1913 the sanitary organization in the provinces was administered through the municipal boards of health and municipal health districts, which were found to be very deficient in practice. A more developed system was introduced with the organization of municipal sanitary divisions. In 1914, 20 per cent of the municipalities composing the Philippine Archipelago were thus organized; in 1915, 26 per cent; in 1916, 50 per cent; in 1917, 59 per cent; in 1918, 82 per cent; in 1919, 99 per cent; and at the end of 1920 all the municipalities were organized into sanitary divisions.

Year.	Physicians.	Sanitary inspectors and nurses.
1909.....	46	49
1913.....	66	217
1920.....	114	503

PROVINCIAL LABORATORIES

There was but one provincial laboratory throughout the Philippines in 1913, and none in the Department of Mindanao and Sulu then. The table below shows the progress of their establishment:

Year.	Where established.	Number of laboratories.
1920.....	Provinces.....	29
1920.....	Mindanao and Sulu.	10

The personnel in charge of these laboratories have received special training in technique at the Bureau of Science and some of them have specialized in the United States in laboratory procedure and the manufacture of biological products.

PUBLIC DISPENSARIES

No public dispensary, worthy of the name, has ever existed in the provinces up to the year 1915, when through the initiative of several district health officers and the efforts of the Provincial Sanitary Commissions, a number of well-stocked dispensaries were established. In 1916 there were 154 such dispensaries in the provinces and 56 in the former Department of Mindanao and Sulu; in 1920 there were 830 in the provinces, 117 in the Division of Mindanao and Sulu, and seven in the City of Manila.

HOSPITALS

Up to 1913 but eight hospitals had been established or reorganized and these were operated under the supervision of the Philippine Health Service. The number increased to 20 in 1920.

DISPOSAL OF EXCRETA

It might not be amiss to remark in this connection that, according to a well-known health authority, there are in the United States about 50 per cent of the population without the benefit of an efficient disposal of excreta. Of the "Antipolo" system of privy, which has been found to answer the sanitary needs in provincial towns, as was demonstrated in the town of Antipolo as far back as 1913, there were only 60 in use in 1916; and at the end of 1919 there were throughout the provinces, including the Division of Mindanao and Sulu, the considerable number of 140,665.

WATER SUPPLY

In 1909 only one water supply system existed in the Islands. This was Carriedo's Water Works. Of artesian wells there were 100 in 1909. The table below shows the increase in different periods:

Year.	Number of water works systems.	Number of arte- sian wells in operation.
1913	2	912
1920	90	2,282

APPROPRIATIONS

If, as has been said, the degree of civilization of a country may be gauged by the attention that it pays to education and the public health, then the Philippines may be considered fortunate in this respect. The appropriation for the Philippine Health Service in 1909 amounted to ₱1,524,530.36; in 1913, to 2,224,103.75; and in 1920 to ₱3,453,282.

HEALTH ACTIVITIES IN THE PROVINCE OF SULU, 1915-1920, INCLUSIVE

By SIXTO Y. OROSA, M. D.,

*District Health Officer, Sulu, Supervising Surgeon, Sulu Public Hospital,
and Acting U. S. Quarantine Officer, Port of Jolo.*

I. GENERAL REMARKS AND PERSONNEL ORGANIZATION

Up to September 6, 1914, when Dr. Ivan B. Hards of the Philippine Constabulary assumed the duties of District Health Officer of the Province of Sulu, it appears that the sanitation of the province was in charge of the medical officers of the U. S. Army. "Dr. Hards shared not a little part in the organization of the health service of Sulu." He was relieved on August 31, 1915, by Dr. M. M. Gallardo, who was from April 4, 1915, to August 31, 1915, the Municipal Health Officer of the city of Jolo.

Dr. S. Y. Orosa was appointed Municipal Health Officer of the city of Jolo on September 13, 1915, and District Health Officer of the Province of Sulu on February 1, 1918, upon the transfer of Dr. Gallardo to Zamboanga. Upon the departure of the military doctors about the latter part of January, 1918, Dr. Orosa was also appointed Acting U. S. Quarantine Officer for the port of Jolo, and he assumed the duties as such at about the same time that he was appointed District Health Officer of Sulu.

The Sulu Public Hospital was inaugurated on November 7, 1915, and Dr. Gallardo also acted as Supervising Surgeon of the Hospital. Dr. Severina Luna-Orosa was appointed on November 1, 1915, resident physician in charge of female and child patients and acting bacteriologist.

Upon Dr. Orosa's appointment as District Health Officer and Supervising Surgeon, Dr. Benito Pañganiban was appointed resident physician of the Sulu Public Hospital and Municipal Health Officer of the city of Jolo, and he assumed his duties on February 16, 1918.

Dr. Pañganiban was transferred to the Philippine National Guard on July 22, 1918, and was relieved by Dr. Jesús A. Nolasco. Dr. Nolasco assumed his duties on August 27, 1918, and on being transferred went to Dapitan on May 29, 1919.

Dr. Nolasco was relieved by Dr. P. T. Garcia who assumed his duties on June 18, 1919.

PERSONNEL AND DATE OF APPOINTMENTS

Dr. Ivan B. Hards was appointed District Health Officer of Sulu, effective August 2, 1914; assumed duties as such on September 6, 1914; and resigned on August 31, 1915.

Dr. M. M. Gallardo was appointed Municipal Health Officer of Jolo, April 4, 1915 (to August 31, 1915); appointed District Health Officer and Supervising Surgeon of the Sulu Public Hospital, September 1, 1915; and transferred to Zamboanga on January 27, 1918.

Dr. Sixto Y. Orosa was appointed Municipal Health Officer of Jolo and Resident Physician of the Sulu Public Hospital on September 13, 1915, and District Health Officer and Supervising Surgeon and Acting Quarantine Officer, February 1, 1918. He is still in the service.

Dr. Benito Pañganiban was appointed Resident Physician and Municipal Health Officer, February 16, 1918. He transferred to the Philippine National Guard, July 22, 1918.

Dr. Jesús A. Nolasco was appointed Resident Physician and Municipal Health Officer, August 27, 1918, and transferred to Dapitan, May 29, 1919.

Dr. P. T. Garcia was appointed Resident Physician, June 18, 1919. He is still in the service.

Dr. Severina Luna-Orosa was appointed Resident Physician (in charge of female and child patients) and Acting Bacteriologist, November 1, 1915. She is still in the service.

The Health Service of Sulu has been maintaining the Sulu Public Hospital, which has a capacity of 30 beds, and 12 dispensaries in the different parts of the province.

From the time of the inauguration of the Hospital, the District Health Officer has been acting as Supervising Surgeon of the Hospital and the Municipal Health Officer as Resident Physician (in charge of the male patients), while the dispensary attendants have also been acting as sanitary inspectors. Three Constabulary *practicantes* and six teachers, the latter without additional remuneration, acted as dispensary attendants.

General statistics of the hospital activities.

	1917	1918	1919	1920
Number of patients admitted.....	637	721	939	1,058
Americans.....	9	8	9	9
Filipinos, Christians.....	331	420	432	569
Filipinos, Mohammedans.....	212	221	368	331
Others.....	85	72	130	149
Discharged.....	611	693	929	1,054
Died.....	32	22	7	12
Number of operations performed.....	232	425	511	549
Major.....	14	20	38	56
Minor.....	218	405	473	493
Dressings.....	3,101	2,330	3,737	3,407
Number of out-patients treated.....	12,833	12,272	9,314	18,764
Number of treatments given to out-patients.....	22,065	16,682	19,318	30,190
Number of Mohammedans treated outside I.....	10,599	8,104	7,290	8,472
Total expenses for subsistence of patients and personnel.....	P5,181.08	P4,947.03	P7,013.91	P7,542.15
Total allowance.....	P9,882.41	P6,951.54	P8,760.20	P8,464.05
Total collected (Hospital and Laboratory).....	P5,041.11	P7,509.52	P8,288.05	P10,190.50
Total balance in favor of the hospital.....	P9,742.11	P9,514.03	P10,034.34	P11,112.40

¹ Jolo alone.

II. DANGEROUS COMMUNICABLE DISEASES

CHOLERA

An epidemic of cholera occurred from March 1, 1915, to June 18, 1915. The cases appeared almost simultaneously in many parts of the province. The first cases were reported from Sitankai, an island very close to Borneo, and it is believed that the infection came from this latter place. A total of 1,085 deaths was reported. Among the difficulties encountered were:

1. The Mohammedans resented and often resisted sanitary measures, such as isolation, quarantine, disinfection, etc.;

2. The Mohammedans washed the corpse regardless of the cause of death and ate with their fingers by the side of the dead (this is a religious practice still being observed);

3. It was and is difficult to exterminate flies in a place where the people do not realize the benefits of sanitation;

4. The Mohammedans would not boil water for drinking;

5. Potable water supply was deficient in many places;

6. The Government, on account of lack of funds, was unable to provide the people with an adequate water supply.

SMALLPOX

The first case of smallpox was registered on November 1, 1915 (in Karundang), while the last case was registered on May 9, 1916. A total of 2,220 cases with 447 deaths was reported. In the municipality of Jolo 65 cases with 23 deaths were registered (exclusive of the cases and deaths occurring in the military reservation).

Among the difficulties encountered in the eradication of smallpox were:

1. The Mohammedans objected to vaccination for many reasons, and among them is the belief that vaccination is similar to cattle-branding;

2. Several Mohammedan "Doctols" and "Imams" practiced direct inoculation of smallpox virus to healthy persons with the belief that immunity would thus be conferred;

3. Isolation or quarantine of the cases was not always possible;

4. Gathering around the sick was (and still is) a common practice among Mohammedans;

5. The Mohammedans would not dispense with religious ceremonies performed over the dead;

6. The means of transportation available were inadequate;

7. The territory comprised by the province is extensive;

8. The districts are widely separated;

9. The vaccine often deteriorated in a week, and ice was not available in many places;

10. Many purposely washed off the virus from their arms after vaccination.

Anti-smallpox vaccination

Year.	Vaccination.	Takes.
1915.....	6,666	2,166
1916.....	45,287	(*)
1917.....	3,815	694
1918.....	2,100	853
1919.....	7,066	4,199
1920.....	7,800	4,260
Total.....	72,234	12,172

* No record.

Malaria is more or less endemic while dysentery occurs in sporadic form. During the last four years, 40 cases of typhoid fever were admitted to the Sulu Public Hospital without a single death. Besides the general treatment for typhoid fever, anti-typhoid vaccine has been used for therapeutic (and prophylactic) purposes.

Gonorrhœa is prevalent, especially in the city of Jolo, while a few cases of syphilis have been registered. The lepers are being segregated and sent to Culion twice a year.

III. COMMON DISEASES

The most common diseases are malaria, dysentery, diseases of the respiratory organs, particularly bronchitis, and tuberculosis skin diseases, especially scabies, tinea imbricata and yaws, and carious teeth.

Summary of the most common causes of mortality occurring during the last five years

Causes.	1920		1919		1918		1917		1916	
	Number.	Ratio to total deaths.	Number.	Ratio to total deaths.	Number.	Ratio to total deaths.	Number.	Ratio to total deaths.	Number.	Ratio to total deaths.
Convulsions (infantile beriberi included).....	2	1.44	25	14.71	72	30.3	71	29	85	7.4
Congenital debility.....	11	7.94	3	1.76	11	4.6	1	0.4	7	1.4
Beriberi (adults).....	0	.....	1	0.59	3	1.3	10	4.0	11	2.2
Beriberi (infants).....	14	10.07	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
Diarrhoea and enteritis (over two years).....	1	0.72	1	0.59	0	.....	1	0.41	(b)	(b)
Acute bronchitis.....	2	1.44	0	.....	12	5.1	1	0.4	9	1.8
Malaria.....	20	14.95	33	19.41	53	22.4	61	25.0	21	4.24
Broncho-pneumonia.....	9	6.47	5	2.94	7	2.9	7	2.8	(b)	(b)
Cancer.....	1	.72	0	.....	0	.....	0	.....	0	.....
Pneumonia.....	0	.....	0	.....	5	2.1	(b)	(b)	(b)	(*)
Diarrhoea and enteritis (under 2 years).....	7	5.03	25	14.59	4	1.7	13	5.3	1	0.2
Homicide by cutting or piercing instruments.....	8	5.75	4	2.35	12	5.1	(b)	(b)	(b)	(b)
Tuberculosis.....	14	10.07	13	7.65	12	5.1	22	9.0	(b)	(b)

* See under conclusions.

^b No record.

IV. INFANT MORTALITY

One-third of the deaths occurred under one year of age. The writer made an investigation of the infant mortality in Jolo. His report was reviewed by the Journal of the American Medical Association in its Journal for June 29, 1918. Dr. Severina Luna-Orosa, one of the Resident Physicians and President and organizer of the Jolo Women's Club, has been giving lectures regularly to the school teachers and pupils of the highest classes at Jolo, with a view to reaching the masses through them. The Club has held several baby contests and in other ways helped promote infant welfare.

V. PUBLIC DISPENSARIES

There are 12 dispensaries located in the most populous parts of the province. Of these six are in charge of trained nurses. The following table shows the work done in the dispensaries:

Year.	Cases.	Treatments.
1915.....	12,867	32,797
1916.....	16,467	35,426
1917.....	22,912	39,809
1918.....	24,288	44,593
1919.....	24,905	49,500
1920.....	35,489	64,189
Total.....	136,928	266,314

VI. DISPOSAL OF EXCRETA

In the municipality of Jolo, the approved system of disposal of excreta is the pail system. In this town there are 188 flush-closets and two septic tanks. The Mohammedans in this place as well as in the rest of the province discharge their excreta direct into the sea. This is a part of their religion.

VII. VITAL STATISTICS

The following table gives a good idea of the progress of sanitation during the last five years:

	1920	1919	1918	1917	1916
Estimated population (Jolo and Siasi)....	20,894	20,894	20,894	20,894	20,894
Deaths.....	139	170	237	244	495
Births.....	201	107	82	112	81
Marriages.....	54	17	5	24	70
Infant mortality (under one year).....	46	58	85	78	107
Death without medical attendance.....	92	107	163	157	347
Death rate.....	6.65	8.1363	10.34	11.2476	23.2124
Birth rate.....	9.63	5.1210	3.9823	5.3608	3.8767
Marriage rate.....	20.49	1.6320	0.4785	2.2973	6.7000
Infant mortality rate.....	227.36	542.0500	1036.5	696.42	1320.90
Deaths without medical attendance, rate	0.6618	0.6294	0.67	0.6454	0.70

VIII. MISCELLANEOUS

Six sanitary wells were perforated during the years 1914 and 1915, three in the municipality of Jolo and three outside. The municipality of Jolo is well provided with water distributed by means of gravity-system. This water, however, needs chlorinization before it can be safely used for drinking purposes. Efforts were made to educate the public along the lines of sanitation and hygiene through lectures and other means. The school children have been regularly inspected every year. Daily inspection by a sanitary inspector of the school children of Jolo and of the prisoners at Jolo are reformed. Daily house-to-house inspection in the municipality of Jolo are being carried on by seven sanitary inspectors.

Sanitary measures are at once taken against any case of dangerous communicable diseases registered. Garbage and refuse are collected daily. The cemeteries are inspected twice a year. All the incoming vessels coming direct from foreign ports are regularly inspected.

A public library was organized under the auspices of the Sulu Public Hospital. The library has now some 500 volumes and 15 magazines and newspapers.

There is yet room for greater health service in Sulu and more funds are needed.

SELECTED APPEALS TO HEALTH OFFICERS

By TEOFILO CORPUS, M. D.,

Medical Inspector, Philippine Health Service

I. LEISURE HOURS OF A HEALTH OFFICER

Did it ever occur to you in your leisure hours, when your official work was done for the day and you wished to while away your valuable time with some more public health "stuff," that you did look for some good way to round it out—to do something more?

What other task do you think of? Don't you think that in your off-duty-hours, you would wish to take a sojourn to the nearest schoolhouse, and give lectures in any current vernacular language on sanitation and hygiene to intermediate pupils who are given the course in this subject? Doesn't this attitude strike you as beneficial?

You know very well that these school children are good media for the propagation of things sanitary and hygienic. You likewise know that these pupils are given the knowledge from books in a theoretical way, and you approach them to present the subject in the most practical way possible so as to give the subject more life.

Would you think of conferring with the supervising teachers and principals of the intermediate schools in your division and make arrangements with them with regard to the carrying out of this plan to an effective end? Wouldn't you do it if they so agree? If you would do it, you would not be a sort of half-hearted health officer, but would certainly be among those "set aside as servants of health."

II. EDUCATIONAL CAMPAIGNS AND THE HEALTH OFFICER

Educational health leaflets should be distributed regularly by mail to the masses living in every *población* and the farthest barrios. This widespread dissemination of information will be one step towards enlightening the public on the subject. This plan is practiced in many progressive countries of the world.

The value of such work is very apparent. This campaign is not so much needed in the *población* as in the barrios. In the barrios, people, because of ignorance and poverty, disregard hygiene. The plan of right living is upset. People are exposed to filth and disease. Knowledge of the subject is vaguely understood. Inspiration for improvement of how to live right is flatly dead.

In the barrios medical science is doubted by the ignorant, and the "herbolarios" and "médico mangkukulam" are better patronized. Here

sick people undergo treatment in an unscientific way, and they die without the right remedy.

These brothers of ours are ignorant. They must be enlightened. We must pity them. Who will save them? Who will lead them in the right way? We health officers are to volunteer and tell them what they must do.

III. THE HEALTH OFFICER AND THE "FIESTA"

Town or barrio *fiestas*, as is customary, come and go throughout the year. People—old and young, poor and rich, and in all walks of life—who come from many different places, patronize these *fiestas*.

It may be that the smallpox spectre stalks behind the gay exterior of the *fiesta*. May be the grim reaper is also taking his harvest of death. May be a convalescent from mumps, whooping cough, diphtheria, typhoid fever, malaria, influenza, measles, varioloid, varicella, or other diseases is also sowing the seeds of fatal infection? Who knows?

This thing may happen; why not? The ignorant people doubt this particular fact. Is this not a sure time and place for the starting point of an epidemic of any of these dangerous communicable diseases? In fact, there should be a warning in every *fiesta* written in big red letters, "DANGER HERE BECAUSE OF A CONTAGIOUS DISEASES."

Are the health officers on the lookout for this danger? Would measures be taken to protect the health of the people during this time? Would they help?

Behold the undoubted importance of educational campaigns! You, officers and employees of the Public Health Service, would you volunteer to undertake such kind of work? Would you lose the opportunity to stand in the midst of *fiesta* crowd and give short talk on such topics as "cleanliness," "Infant Feeding," "Expectant Mothers," or on any other topic dealing with the many dangerous communicable diseases?

Remember the great work of the educational campaign during the *fiesta*, or at any other suitable time of the year, in your respective division. Take part in it. When this task is done, then, and only then, can it be said that every health officer is doing his bit in the great patriotic work of public health.

Make the educational campaign stand high!

IV. EVERY HEALTH OFFICER SHOULD LEAVE A NAME IN THE SERVICE

Have you ever realized what vast problems on sanitation every health officer has at hand? Have you ever thought how far we have already gone in this line? "Not very far," is the positive reply.

But we are trying! God knows that we are trying! We know that we have already met hardships and difficulties and the "ups and downs." We do not lament such slowness, for doggedness of purpose even with slow progress is a virtue which makes for strength.

Notwithstanding this fact, "we keep on and on and on with a patience that never wearies and a courage that never weakens and paves the way for failure. And still we keep on with a perseverance that never falters and a fidelity that never gets careless, inviting failure. And still we keep on with a faith that will not die and a steadiness that will not yield until we are able to stop calmly and say, "We have it."

We are seeing every day the glories of achievement which our imagination is able to see in the future. We try every day to do better than we have done the day before.

"We have heard of a Hall of Fame in which are to be gathered the effigies and the annals of the nations' benefactors, and we have been told that the committee having the matter in charge had not been able to discover a single member of the medical profession of sufficient merit to deserve a place in this galaxy of immortals." Who of you health officers will rise in the future and get a place in the Hall of Fame?

There is a place for righteous, dynamic inspiration!

MISCELLANEOUS

ASSIGNMENTS

Medical inspector Jose M. Raymundo in charge of Health Station No. 1, Intramuros, Manila, has been detailed, in addition to his regular duties to the Constabulary for the purpose of serving as a member of the board to be appointed by the Chief of Constabulary to examine Constabulary medical inspectors from time to time for promotion.

Nurse Serapia Cadapan of the San Lazaro Hospital and district nurse Gregoria Villanueva of the Office of District Nursing have been directed to proceed to Camp Stotsenburg, Pampanga, and to report for duty to the Commanding Officer thereof for one week after which time they are to return to their respective stations.

Nurse Olimpia Lumen of the San Lazaro Hospital has been directed to report to the Chief, Office of District Nursing, to assume the duties of district nurse Gregoria Villanueva during the time the latter is assigned at Camp Stotsenburg, after which time she is to return to her former station.

APPOINTMENTS

Dr. Salvador V. del Rosario, Assistant Director of Health, and Dr. Leoncio Lopez Rizal, Senior Medical Inspector in charge of the epidemiological section of the Office of Statistics, have been appointed a Committee to make a thorough survey of the cause of the cholera outbreak in Manila and adopt stringent measures for the prompt and immediate supervision of same.

Officers and employees of the Philippine Health Service have been directed to cooperate with and furnish all facilities to the Committee in order that it may carry out effectively its purpose.

THE HEALTHMOBILE

HEALTHMOBILE AT MALABON, RIZAL

On December 5th the healthmobile of the Philippine Health Service was sent to Malabon, Rizal. In the evening speeches touching on the different topics about health were given. After the speeches the healthmobile exhibited different films and slides. The following were shown in their respective order:

1. Red Cross (2 parts).
2. Who is wrong? (1st part, comic).
3. "Slides" on malaria with lectures, by G. D. Mendoza.

4. Who is wrong? (2nd part).

5. Cholera, dysentery and typhoid fever, with lectures, by Assistant Sanitary Inspector B. Reyes.

About 2,000 people attended the healthmobile show which lasted until about 1 p. m.

CANTON'S HEALTH DEPARTMENT PATERNEDED AFTER THAT OF THE PHILIPPINES

Dr. S. M. Woo who spent some six months in Manila during the past year, studying the organization of the Philippine Health Service and its various activities, has recently organized the Canton's Health Department. On his return to China last year, he brought with him a number of publications of the Philippine Health Service which helped him to organize an institution patterned after that of our own.

PERSONAL NEWS

Dr. W. H. Wade of the Leprosy Investigating Committee has returned from Culion last Saturday. Dr. Calma, Dental Surgeon for the Colony, has also arrived on the Gravina.

GARDEN DAY AT CULION

The first Garden Day celebration was held in the Colony on Thanksgiving Day with an unusually big attendance. The agricultural and horticultural products were exhibited in seventy different booths erected around Worcester Plaza. All these products, weighing approximately 8,000 kilos were raised by leper farmers, who have under cultivation about 100 hectares of land. Among the five farmers who were awarded prizes there was one who had on exhibition 29 different species. The smallest booth had on exhibition 14 different varieties of products. Among the products exhibited were banana, corn, *kamoteng kahoy*, papaya, *camote*, *tugue* and *sitao*. Two farmers from the barrio of Baldad exhibited brown sugar.

There was also an exhibition of industrial articles made by leper pupils.

There was a parade also on Thanksgiving eve. The police corps exhibited calisthenic drills and the Colony Fire Protection Organization made some demonstration in fire fighting.

There were athletic games—volley ball and indoor base-ball.

The Jury of Awards was composed of Dr. Catalino Nicolas, Mr. Alfredo Amoroso and Dr. H. W. Wade. The prizes consisted of agricultural implements aggregating ₱70 in value.

The Colony band rendered excellent music.

A CASE OF SMALLPOX

An American gentleman, 38 years old, married, engineer by profession, arrived in the City on November 30th on the Golden State. He lodged at the Manila Hotel and 5 days later developed fever and was transferred on this account to St. Paul's Hospital. On the 11th the case was reported as smallpox. As the boat called at Shanghai on November 26th where smallpox is known to be present, it is reasonable to presume that he was already infected when he alighted from the steamer. The usual protective measures have been taken in this case.

A RESOLUTION OF THANKS OF TEACHERS IN ILOCOS NORTE

Resolution of thanks to Mrs. Parker, to Dr. Santos, to Misses Yoro and Foronda for their great interest in looking after the health of teachers in Ilocos Norte:

Whereas, the teaching force in Ilocos Norte has been very much benefited by the earnest efforts of Mrs. Parker, Dr. Santos, and the two nurses, Miss Yoro and Miss Foronda, to relieve teachers and pupils from their pains;

Whereas, their work is not merely to see the physical but also to the moral standard of every teacher;

Whereas, the Red Cross work that exists in Ilocos Norte runs smoothly under the supervision of Mrs. Parker who is very much interested in improving the health of the teachers, their families, and members of the Women's Clubs in Ilocos Norte;

Whereas, through the work of Misses Yoro and Foronda, Dr. Santos and Mrs. Parker, the diseases of teachers have been lessened to a high possible degree;

Whereas, their charitable work is worthy of praise and appreciation;

Be it resolved, That a vote of thanks be forwarded to Mrs. Parker, Dr. Santos, Miss Yoro, and Miss Foronda.

Be it resolved further, That a copy of this resolution be sent to each of the mentioned benefactors of the Ilocos Norte teaching force in particular and to humanity in general.

JUSTO PEÑA,
Chairman on Resolution Committee
Supervising Teachers' Convention,
Laoag, Ilocos Norte, 1921.

THE WORK OF YAWS HOSPITAL AT PARAÑAQUE

The yaws hospital at Parañaque was established by the Philippine Health Service several months ago for the purpose of treating cases of yaws which are found in that locality. A suitable house was rented and fitted to accommodate ten patients at least. Drs. P. Gutierrez, Jose Guidote, and Lorenzo Fernandez were in attendance at the hospital, assisted by District Nurse Emilia Catanjal and Provincial Sanitary Inspector Genon Maylad. On clinic days, Dr. Sellards of the Bureau of Science and Dr. Goodpasteur of the College of Medicine and Surgery were also in attendance.

Between September 10 and November 10, 1921, 271 cases were treated and a total of 387 intravenous injections were given. All the cases have been reported cured, and Parañaque as an old focus of yaws infection has disappeared from the map. In this connection, it is well to remember that salvarsan, as a specific for yaws, was discovered in the Philippine Islands in 1910 by Dr. Strong.

VISITORS BOAT FOR CULION

Beginning this year, the visitors' boat that usually goes to Culion about Christmas time will not be sent out this year. The trip has been transferred to April next for the convenience of the majority of visitors. Past experience has shown that the South seas about this time are usually rough, and the passengers, instead of enjoying the trip, are usually made to suffer on account of the inclemencies of the weather.

GENERAL STATISTICS

[Unless otherwise stated these statistics are for the month of December, 1921.]

ESTIMATED POPULATION OF THE CITY OF MANILA FOR 1921.

BY NATIONALITIES.

Nationality.	Population
Americans.....	8,134
Filipinos.....	267,408
Spaniards.....	1,955
Other Europeans.....	1,126
Chinese.....	17,856
All others.....	2,186
Total.....	298,665

BY DISTRICTS.

Health districts.	Population
No. 1, Intramuros.....	86,108
No. 2, Meisic.....	100,587
No. 4, Sampaloc.....	47,662
No. 5, Tondo.....	77,868
No. 6, Paco.....	31,445
Total.....	298,665

METEOROLOGICAL REPORT FOR MANILA CENTRAL OBSERVATORY DEDUCED FROM HOURLY OBSERVATIONS DECEMBER, 1931.

Date.	Relative humidity.									
	Temperature.									
	In shade. ¹		Underground.			Mean.		Daily mean		Day.
	Mean.	Absolute maximum.	Day.	Absolute minimum.	Day.	8 a. m.	2 p. m.	maximum.	minimum.	
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	Per cent.	Per cent.	Per cent.
	mm.									
1-10.....	760.72	23.9	31.5	1	17.4	8	27.4	27.8	82.2	1
11-20.....	60.48	24.5	32.9	17.20	17.8	11	26.8	27.1	79.0	14
21-31.....	60.11	24.7	32.3	22	19.0	28	27.1	27.4	79.6	22
										10
										20
										25

Date.	Wind.									
	Prevailing direction.					Atmometer: ² (open air).				
	Total.		Velocity.			Sunshine.		Rainfall.		
	Total.	Daily total maximum.	Day.	Total.	Daily maximum.	Day.	Daily maximum.	Total.	Day.	Rainy days.
	Km.	Km.		mm.	mm.		h. m.	mm.		
1-10.....	1,031.5	136.0	3	21.9	3.4	10	55 35	8 25	8, 10	5
11-20.....	1,465.5	175.0	18	31.8	4.6	18-20	50 20	8 35	11	4
21-31.....	1,327.5	161.0	25	30.8	3.3	25, 27	56 55	8 20	28	3

¹ Corrected for instrumental error and for temperature and reduced to sea level. Correction to standard gravity, - 1.72 mm.² These values are taken from instrument mounted in the Observatory Park, 1.5 meters above ground.

BIRTHS REPORTED IN THE CITY OF MANILA.

[Stillbirths not included.]

Nationality.	Male.	Female.	Total.	Annual birth rate per 1,000.
Americans.....	5	1	6	22.56
Filipinos.....	577	505	1,082	47.67
Spaniards.....	4	2	6	36.16
Other Europeans.....	1	1	2	10.46
Chinese.....	29	20	49	32.33
All others.....	4	4	8	43.12
Total.....	620	532	1,152	46.22

BIRTHS, BY DISTRICTS.

Health districts.	Legitimates.			Illegitimates.			Grand total.	Annual birth rate per 1,000.
	Male.	Female.	Total.	Male.	Female.	Total.		
No. 1, Intramuros.....	90	67	157	7	1	8	165	53.84
No. 2, Meisic.....	113	85	198	3	11	14	212	24.83
No. 4, Sampaloc.....	82	76	158	7	9	16	174	43.01
No. 5, Tondo.....	230	195	425	13	14	27	452	68.40
No. 6, Paco.....	65	68	133	10	6	16	149	55.82
Total.....	580	491	1,071	40	41	81	1,152	46.22

Number of births attended by physician, living, 252; stillbirths, 23.

Number of births attended by midwife, living, 107; stillbirths, 4.

Number of births attended by family, living, 793; stillbirths, 18.

NUMBER OF DEATHS AND DEATH RATE PER 1,000 AMONG RESIDENTS, IN THE CITY OF MANILA, BY NATIONALITIES.

[Stillbirths not included.]

Nationality.	Male.	Female.	Total.	Annual death rate per 1,000.
Americans.....	3	1	4	15.04
Filipinos.....	310	308	618	27.23
Spaniards.....	4	3	7	42.19
Other Europeans.....	1	1	2	15.84
Chinese.....	16	8	24	10.78
All others.....	2	2	4	28.28
Total and average.....	335	320	655	28.28

TOTAL DEATHS BY SOCIAL CONDITION, INCLUDING TRANSIENTS.

Social condition.	Male.	Female.
Married.....	94	71
Divorced.....	28	66
Widowed.....	268	224
Single.....	4	.....
Conditions not stated.....	.....	.....
Total.....	394	361
Grand total.....	755	

Stillbirths.....	45
Number of deaths with medical attendance.....	370
Number of deaths without medical attendance.....	385

DEATHS BY AGES IN THE CITY OF MANILA.

[Stillbirths not included.]

Ages.	Residents.		Transients.		Total.
	Male.	Female.	Male.	Female.	
Under 30 days.....	40	32	8	1	81
30 days to under 1 year.....	73	68	18	15	169
1 year to under 2 years.....	25	35	4	3	67
2 years to 4 years.....	28	26	3	1	58
5 years to 9 years.....	16	14	1	2	33
10 years to 14 years.....	4	5	1	1	11
15 years to 19 years.....	11	9	3	3	26
20 years to 29 years.....	24	27	12	4	67
30 years to 39 years.....	24	20	2	4	50
40 years to 49 years.....	28	16	5	1	50
50 years to 59 years.....	26	13	1	2	42
60 years to 69 years.....	11	16	1	1	29
70 years to 79 years.....	15	17	2	2	36
80 years to 89 years.....	7	8	2		17
90 years to 99 years.....	2	10			12
100 years and over.....		4			4
Age not stated.....	1				1
Total.....	835	320	58	40	753

In this table one female Filipino of 8 months of age, and one male Chinese of 40 years of age, permanent residence, unknown are not included.

DEATHS AND DEATH RATE PER 1,000, BY DISTRICTS, INCLUDING TRANSIENTS.

[Stillbirths not included.]

Health districts.	Deaths.	Annual death rate per 1,000.
No. 1, Intramuros.....	119	38.83
No. 2, Meisic.....	126	14.76
No. 4, Sampaloc.....	112	27.69
No. 5, Tondo.....	313	47.36
No. 6, Paco.....	85	31.85
Total.....	755	30.29

[Stillbirths not included.]

II. Diseases of the nervous system and of the organs of special sense.

51. Simple meningitis.....	11	12	.....	1	.....	24
51a. Cerebro-spinal fever.....	1	.....	.....	.....	.....	1
54. Cerebral haemorrhage, apoplexy.....	7	6	.....	.....	.....	13
55. Softening of the brain.....	1	.....	.....	.....	.....	1
56. Paralysis without specified cause.....	1	1	.....	.....	.....	1
71. Convulsions of infants (under 5 years of age).....	3	1	.....	.....	.....	4

NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG RESIDENTS IN THE CITY OF MANILA—Continued.

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
III. Diseases of the circulatory system.													
78. Acute endocarditis.....													2
79. Organic diseases of the heart.....	1		7							1			7
80. Angina pectoris.....													2
82. Embolism and thrombosis.....													1
84. Diseases of the lymphatic system (lymphangitis, etc.).....			1										1
IV. Diseases of the respiratory system.													
87. Diseases of the larynx.....			1										1
89. Acute bronchitis.....			26										26
90. Chronic bronchitis.....			9										14
91. Broncho-pneumonia.....			20							1			21
92. Pneumonia.....			6							1			7
93. Pleurisy.....			2										2
94. Pulmonary congestion, pulmonary apoplexy.....													1
V. Diseases of the digestive system.													
104. Diarrhoea and enteritis (under 2 years).....			9										9
105. Diarrhoea and enteritis (2 years and over).....			4										4
108. Appendicitis and typhilitis.....													1
109. Hernias, intestinal obstructions.....			1										1
111. Other diseases of the liver.....			1										1
VI. Nonvenereal diseases of the genito-urinary system and annexa.													
119. Acute nephritis.....			5							1			6
120. Bright's disease.....			9							1			10
VII. The puerperal state.													
134. Accidents of pregnancy.....													2
135. Puerperal haemorrhage.....													1
137. Puerperal septicæmia.....													1
138. Puerperal albuminuria and convulsions.....													2
													2

143. Furuncle.....	1
144. Acute abscess.....	1

150. Congenital malformations (stillbirths not included):
(3) Other congenital malformations.....

Other congenital malformations	1
(3) Other congenital malformations	1
Other congenital malformations	1

151. Congenital debility, icterus and sclerema:

[illegible]

54. Senility.....	12	25	37
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60. Suicide by cutting or piercing instruments.	1	1
Burns (conflagration excepted)	1	1
67. Accidental drowning.	1	1
69. Traumatism by cutting or piercing instruments	1	1
71. Traumatism by other crushing (vehicles, railways, landslides, etc.)	1	1
75. Traumatism by other crushing (vehicles, railways, landslides, etc.)	1	1

89. Cause of death not specified or ill-defined.....	1	4	1	6
Total.....	3	1 310	308	655
Grand total.....	4	618	7	655

NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG TRANSIENTS IN THE CITY OF MANILA.

[Stillbirths not included.]

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
I. General diseases.													
1. Typhoid fever.....			2										2
4. Malaria.....						1							1
6. Measles.....			2										2
10. Influenza.....			1										1
12. Asiatic cholera.....						1							1
14. Dysentery.....						2							2
18. Erysipelas.....						1							1
20. Purulent infection and septicaemia.....						1							1
24. Tetanus.....			3			5							8
27. Beriberi.....			3			1							4
28. Tuberculosis of the lungs.....						1							1
34. Tuberculosis of other organs.....						1							1
37. Syphilis.....													1
40. Cancer and other malignant tumors of the stomach, liver.....		1											1
44. Cancer and other malignant tumors of the skin.....						1				1			1
50. Diabetes.....													1
II. Diseases of the nervous system and of the organs of special sense.													
61. Simple meningitis.....			2										2
66. Paralysis without specified cause.....						1							1
III. Diseases of the circulatory system.													
79. Organic diseases of the heart.....			2										2
81. Diseases of the arteries, aneurysm, etc.....													1
IV. Diseases of the respiratory system.													
89. Acute bronchitis.....			2			7							9
90. Chronic bronchitis.....			1			1							2
91. Broncho-pneumonia.....	1		10			5							16
92. Pneumonia.....			5										5
95. Gangrene of the lungs.....						1							1

INFANT MORTALITY.

Causes of death.	Under 24 hours.	24 hours to under 36 hours.	36 hours to under 48 hours.	48 hours to under 14 days.	14 days to under 1 year.	Total.
Asphixia, ascites chronic peritonitis	1					1
Atelectasis, pulmonary bilateral, partial				1		1
Athrepsia of parrot					1	1
Beriberi infantile				9	64	73
Breech extraction	1					1
Bronchitis, acute					32	32
Bronchitis, chronic					9	9
Bronchopneumonia					9	9
Bronchopneumonia, severe					5	5
Bronchopneumonia following measles					2	2
Congenital debility	10		1	21	9	41
Congenital syphilis					1	1
Convulsions, infantile					1	1
Eclampsia, infantile					1	1
Enteritis					1	1
Enteritis, acute					1	1
Enteritis, chronic					2	2
Enterocolitis, chronic					1	1
Erysipelas					1	1
Furunculosis					1	1
Gastro-enteritis					4	4
Gastro-enteritis, acute					1	1
Gastro-enteritis, chronic					1	1
Hæmophilia					1	1
Hæmorrhage, internal peritoneum. Hæ-						
morrhage meningeal				1		1
Hæmorrhage of the newborn				1		1
Hypertrophy of heart, right					1	1
Icterus neonatorum				1		1
Inanition					1	1
Malformation viscera	1					1
Malnutrition					5	5
Marasmus					9	9
Marasmus, T. B. peribronchial					1	1
Meningitis, acute					7	7
Meningitis, cerebral acute					1	1
Meningitis, cerebro-spinal					1	1
Meningitis, simple					1	1
Meningitis, tuberculous					1	1
Nephritis, acute					2	2
Nephritis, parenchymatous					1	1
Pleurisy, purulent					1	1
Pneumonia, lobar					2	2
Prematurity	8			4		12
Pulmonary congestion					1	1
Septicæmia					1	1
Tetanus neonatorum, secondary to gangre-						
nous omphalitis				1		1
Tetanus, umbilical				5		5
Tuberculosis, pulmonary					1	1
Total	21		1	44	185	251

ANTI-PLAGUE CAMPAIGN IN THE CITY OF MANILA.

Number of spring traps set	30,013
Number of rats caught with spring traps	3,747
Number of wire traps set	310
Number of rats caught by wire traps	
Number and kind of baits (coconuts)	30,323
Number of poison portions placed	25,775
Number of rats found poisoned	215
Number of rats killed by clubs and other weapons	1,409
Number of rats found dead from other causes	611
Total number of rats otherwise caught, found dead or killed	5,982
Total number of rats sent to laboratory for examination	5,982
Total number of rats found positive for plague	

**TYPHOID AND PARATYPHOID FEVER REPORTED DURING THE MONTH OF
DECEMBER, 1921, CITY OF MANILA, RESIDENTS ONLY.**

CASES.

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Living:											
Male.....	3		6		14	2	6	1	1		33
Female.....	1		7	3	4		5	3	2	2	27
Dead:											
Male.....		2		1	1	1					5
Female.....			1		1	1		2		2	7
Total:											
Male.....	3	2	6	1	15	3	6	1	1		38
Female.....	1		8	3	5	1	5	5	2	4	34
Grand total.....	4	2	14	4	20	4	11	6	3	4	72

DEATHS.

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Male		2	3	1	1	1	1	1			9
Female			2	1	1	1	1	2	1	3	12
Total		2	5	2	2	2	2	2	1	3	21

Total cases reported within the month.....	84
Provincial cases reported in the city of Manila.....	12
Foreign cases reported in the city of Manila.....	0
City cases (residents only).....	72
Total deaths reported within the month.....	21
Deaths among provincial cases reported in Manila.....	0
Deaths among foreign cases reported in Manila.....	0
Deaths among city cases.....	21
Total confirmed as typhoid fever.....	82
Widal reaction.....	45
Blood culture.....	0
Autopsy.....	0
Clinically positive.....	37
Cases confirmed as paratyphoid fever.....	0
Cases not confirmed.....	2
Paratyphoid fever: None.....	

**DYSENTERIES REPORTED DURING THE MONTH OF DECEMBER, 1921, CITY OF
MANILA, RESIDENTS ONLY.**

CASES.

Reported.	Health districts.										Total
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Living:											
Male	2	0	2	0	0	1	2	1	0	0	8
Female	1	0	3	0	1	1	1	0	0	0	7
Dead:											
Male	0	0	1	0	1	2	0	4	0	0	8
Female	2	0	0	0	0	0	1	1	1	1	6
Total:											
Male	2	0	3	0	1	3	2	5	0	0	16
Female	3	0	3	0	1	1	2	1	1	1	13
Grand total	5	0	6	0	2	4	4	6	1	1	29

DEATHS.

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Male	0	0	1	0	1	2	0	4	0	0	8
Female.....	1	1	0	0	0	0	1	1	1	1	6
Total.....	1	1	1	0	1	2	1	5	1	1	14

Total cases reported within the month.....	34
Provincial cases reported in the city of Manila.....	5
City cases (residents only).....	29
Total deaths reported within the month.....	15
Deaths among provincial cases reported in the city of Manila.....	1
Deaths among city cases.....	14
Reported as:	
Amoebic dysentery.....	4
Acute dysentery.....	7
Bacillary dysentery.....	5
Chronic dysentery.....	3
Dysentery.....	13
Not dysentery.....	2
Total.....	34

**SUSPECT CHOLERA REPORTED DURING THE MONTH OF DECEMBER, 1921, CITY
MANILA, RESIDENTS ONLY.**

CASES.

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Living:											
Male.....	1	0	9	0	7	0	2	0	0	0	19
Female.....	1	0	8	0	7	0	3	0	2	0	21
Dead:											
Male.....	0	0	0	1	0	3	0	0	0	0	4
Female.....	1	0	0	0	0	1	0	0	0	0	2
Total:											
Male.....	1	0	9	1	7	3	2	0	0	0	23
Female.....	2	0	8	0	7	1	3	0	2	0	23
Grand total.....	3	0	17	1	14	4	5	0	2	0	46

SUSPECT CHOLERA REPORTED DURING THE MONTH OF DECEMBER, 1921, CITY OF MANILA, RESIDENTS ONLY—Continued.

DEATHS.

Sex.	Health districts.										Total
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Male.....	1	0	4	1	0	3	1	0	0	0	10
Female.....	1	0	1	0	3	1	0	0	2	0	8
Total.....	2	0	5	1	3	4	1	0	2	0	18

Total cases reported within the month.....	46
Provincial cases reported in the city of Manila.....	0
Foreign cases reported in the city of Manila.....	0
City cases (residents only).....	46
Cases confirmed as cholera.....	42
Cases not confirmed (found negative).....	4
Total deaths reported within the month.....	18
Deaths among provincial cases reported in the city of Manila.....	0
Deaths among foreign cases reported in Manila.....	0
Deaths among city cases.....	18
Deaths confirmed as cholera.....	17
Deaths not confirmed.....	1
Cholera carriers: 9 cases, 0 deaths.	

DIPHTHERIA REPORTED DURING THE MONTH OF DECEMBER, 1921, CITY OF MANILA, RESIDENTS ONLY.

CASES.

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	
Living:											
Male.....	0	0	0	0	0	0	1	0	0	0	1
Female.....	0	0	0	0	0	0	0	0	0	0	0
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total:											
Male.....	0	0	0	0	0	0	1	0	0	0	1
Female.....	0	0	0	0	0	0	0	0	0	0	0
Grand total.....	0	0	0	0	0	0	1	0	0	0	1

DEATHS.

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total.....	0	0	0	0	0	0	0	0	0	0	0

Total cases reported within the month.....	1
Provincial cases reported.....	0
City cases reported.....	1
City cases confirmed as diphtheria.....	1
City cases not confirmed.....	0
Total deaths reported within the month.....	0
City deaths confirmed.....	0
City deaths not confirmed.....	0
Deaths among provincial cases.....	0
Diphtheria carriers: 2 cases, 0 deaths.	

**OTHER COMMUNICABLE DISEASES REPORTED IN THE CITY OF MANILA DURING
THE MONTH OF DECEMBER, 1921, RESIDENTS ONLY.**

Diseases.	Cases.	Deaths.
Smallpox.....	0	0
Varioloid.....	0	0
Varicella.....	11	0
Measles.....	10	1

NOTE.—Also reported in the city 1 foreign case of smallpox, 1 foreign case of varioloid, 1 provincial case of varicella and 1 provincial case and 2 deaths of measles, not included in this table.

REPORT ON THE DISTRIBUTION OF ASSORTED SERA AND VACCINES.

Sera and vaccine.	On hand Dec. 1, 1921.	Received during the month.	Total to be accounted for.	Distribut- ed, during the month.	Remain- ing at the end of the month.
Anti-diphtheric serum (units).....	647,000		647,000		647,000
Anti-dysenteric serum (ampoules).....	20		20		20
Anti-tetanic serum (units).....		324,000	324,000	324,000	
Cholera vaccine (c.c.).....	8,360	94,820	103,180	62,840	40,340
Dried vaccine virus (units).....	2,900		2,900	2,900	
Fresh vaccine virus (units).....	90,200	200,000	290,200	196,200	94,000
Gonococcus vaccine (ampoules).....		180	180	180	
Normal horse serum (ampoules).....		24	24	24	
Typhoid and paratyphoid vaccine (am- poules).....	5,600	4,000	9,600	1,210	8,390

**SMALLPOX VACCINATIONS IN THE CITY OF MANILA, DURING THE MONTH
OF DECEMBER, 1921.**

Health districts.	Total vaccina- tions.	Total inspec- tions.	Positive.	Negative.
No. 1, Intramuros.....	2,282	413	363	50
No. 2, Meisic.....	2,559	508	415	93
No. 4, Sampaloc.....	1,808	235	207	28
No. 5, Tondo.....	1,976	428	368	60
No. 6, Paco.....	1,170	271	196	75
Total.....	9,795	1,855	1,549	306

**CONSOLIDATED CHOLERA VACCINATIONS FOR THE MONTH
OF DECEMBER IN THE CITY OF MANILA.**

Districts.	Number of persons vaccinated.								Total.
	Males.				Females.				
	Double injections.		Single injections.		Double injections.		Single injections.		
	A.	C.	A.	C.	A.	C.	A.	C.	
No. 1, Intramuros			862	133			334	69	1,398
No. 2, Meisic			1,799	400			1,388	335	3,922
No. 4, Sampaloc			801	439			829	588	2,657
No. 5, Tondo			964	711			818	500	2,993
No. 6, Paco	567	533	565	475	596	507	528	425	4,196
Total	567	533	4,991	2,158	596	507	3,897	1,917	15,169

NOTE.—A, mean adults; C, children.

CONSOLIDATED TYPHOID VACCINATIONS FOR THE MONTH OF DECEMBER IN THE CITY OF MANILA.

Districts.	Number of persons vaccinated.				Total.
	Males.		Females.		
	Adults.	Children.	Adults.	Children.	
No. 1, Intramuros.....	186	21	107	32	346
No. 2, Meisic.....	14	8	35	10	67
No. 4, Sampaloc.....	27	10	80	14	81
No. 5, Tondo.....	48	16	100	17	181
No. 6, Paco.....	33	21	39	25	118
Total.....	308	76	311	98	798

CONSOLIDATED CHOLERA VACCINATIONS REPORTED FROM PROVINCES FOR THE MONTH OF DECEMBER.

Provinces.	Week ending third.		Week ending tenth.		Week ending seventeenth.	
	A.	C.	A.	C.	A.	C.
Abra.....					96	3
Albay.....	513	173	811	237	609	256
Antique ¹	125	45				
Bataan ¹	15	123				
Bohol.....					14	85
Bulacan.....					289	209
Cagayan.....	91	195	438	1,322		
Cebu.....	211	73	211	37	19	
Ilocos Sur ¹	402	202	376	188	413	213
Iloilo ¹					3	9
Laguna.....	88	48				
La Union.....	159	18	306	404	227	178
Marinduque ¹	81					
Nueva Ecija ¹					14	82
Nueva Vizcaya.....			56	63	160	167
Oriental Negros.....					322	389
Pampanga ¹	23	34	103	33	8	3
Pangasinan.....	371	98	274	287	150	693
Rizal ¹			25	2		
Romblon.....					701	189
Tayabas ¹	565	4				
Total.....	2,644	1,013	2,599	2,573	3,025	2,426

Provinces.	Week ending twenty-fourth.		Week ending thirty-first.		Total.	
	A.	C.	A.	C.	A.	C.
Abra.....	104	361			200	364
Albay.....	742	246	565	199	3,240	1,111
Antique ¹					125	45
Bataan ¹					15	123
Bohol.....	66				80	35
Bulacan.....					289	209
Cagayan.....					529	1,517
Cebu.....					441	110
Ilocos Sur ¹	425	205			1,616	808
Iloilo ¹					3	9
Laguna.....					88	48
La Union.....	625	225	590	303	1,907	1,128
Marinduque ¹					81	
Nueva Ecija ¹					14	82
Nueva Vizcaya.....					216	230
Oriental Negros.....					322	389
Pampanga ¹	59				192	70
Pangasinan.....	553	168			1,348	1,246
Rizal ¹					25	2
Romblon.....					701	189
Tayabas ¹					565	4
Total.....	2,574	1,205	1,155	502	11,997	7,719

¹ Report not complete.

NOTE.—A, means adults; C, children.

Other provinces' report not yet received.

TOTAL VACCINATIONS IN THE PROVINCES FOR THE YEAR 1921.¹

Provinces.	Vaccina- tions.	Inspections.	Positive.	Negative.
Abra.....	11,933	10,893	6,449	4,444
Albay.....	51,032	37,078	26,487	10,591
Antique.....	12,631	11,827	7,789	4,038
Bataan.....	9,795	9,523	6,538	2,985
Batanes.....	3,346	3,184	1,782	1,402
Batangas.....	36,680	12,030	8,765	3,265
Bohol.....	46,676	40,908	26,401	14,507
Bulacan.....	37,593	25,103	18,939	6,164
Cagayan.....	17,176	12,177	7,823	4,354
Camarines Norte.....	740	512	235	277
Camarines Sur.....	63,948	44,426	33,623	10,803
Capiz.....	47,994	46,702	35,795	10,907
Catanduanes.....	8,123	6,896	4,026	1,870
Cavite.....	29,207	26,144	18,229	7,915
Cebu.....	273,798	186,380	102,684	83,696
Cullion Leper Colony.....	868	361	195	166
Ilocos Norte.....	23,860	20,069	9,385	10,684
Ilocos Sur.....	48,877	35,673	21,988	13,685
Iloilo.....	92,115	54,880	42,213	12,667
Isabela.....	5,802	4,959	2,228	2,741
Laguna.....	26,426	24,440	17,054	7,386
Leyte.....	156,230	85,825	60,986	24,839
Marinduque.....	18,140	10,630	6,976	3,654
Masbate.....	2,187	2,187	1,398	789
Mindoro.....	9,310	7,201	3,666	3,535
Mountain.....	34,719	25,740	17,864	7,876
Nueva Ecija.....	175,603	99,450	65,616	33,834
Nueva Vizcaya.....	3,628	3,422	2,702	720
Occidental Negros.....	38,558	28,948	18,402	10,546
Oriental Negros.....	44,336	37,109	26,424	10,685
Palawan.....	753	494	160	334
Pampanga.....	42,907	18,346	12,593	5,753
Pangasinan.....	315,119	262,301	154,295	108,006
Risal.....	31,578	25,281	16,290	8,991
Romblon.....	39,878	26,889	16,975	9,914
Samar.....	14,984	8,007	4,836	3,171
Sorsogon.....	151,171	100,600	64,097	36,503
Tarlac.....	10,668	10,370	6,864	3,506
Tayabas.....	29,728	25,606	17,854	7,652
Union.....	82,428	55,133	35,286	19,897
Zambales.....	18,700	12,395	9,015	3,380
Total.....	2,058,245	1,459,059	940,927	518,132

¹ From reports received up to December, 1921.

CONSOLIDATED TYPHOID VACCINATION REPORTED FROM PROVINCES FOR THE MONTH OF DECEMBER,

Provinces.	Week end- ing 3rd.		Week end- ing 10th.		Week end- ing 17th.		Week end- ing 24th.		Week end- ing 31st.		Total.	
	A.	C.	A.	C.	A.	C.	A.	C.	A.	C.	A.	C.
Cavite.....			64	16			6	9			70	25
La Union.....	4	13	10		51	13	27				92	26
Total.....	4	13	74	16	51	13	33	9			162	51

NOTE.—A, means adults; C, children.

SMALLPOX REPORTED FROM THE PROVINCES, FOR THE MONTH OF DECEMBER, 1921.

Provinces and towns.	Cases.	Deaths.
Bukidnon:		
Tankulan.....	0	2
Total.....	0	2

**CHOLERA REPORTED FROM THE PROVINCES, FOR THE MONTH OF DECEMBER,
1931.**

Provinces and towns.	Cases.	Deaths.
Zambales:		
Iba	3	3
Palauig	28	15
Total	31	18

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MONTHLY BULLETIN
OF THE
PHILIPPINE HEALTH SERVICE

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July.....	12
August.....	64
September.....	116
October.....	140
November.....	177
December.....	215

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Cholera cases reported from the provinces:

July.....	40
August.....	95
September.....	130
October.....	155
November.....	191
December.....	229

* Cholera cases reported:

August.....	100
September.....	126-127
October.....	150
November.....	187
December.....	224

Deaths due to cholera:

August.....	100
September.....	126-127
October.....	151
November.....	187
December.....	225

* Communicable diseases reported:

July.....	46
August.....	101
September.....	128
October.....	152
November.....	188
December.....	226

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July.....	13
August.....	65
September.....	117
October.....	141
November.....	178
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July.....	13
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September.....	117
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November.....	177
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July.....	13
August.....	65
September.....	118
October.....	141
November.....	178
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August.....	65
September.....	117
October.....	140
November.....	177
December.....	215

* Diphtheria cases reported:

August.....	101
September.....	127
October.....	151
November.....	188
December.....	225

* Deaths due to diphtheria:

August.....	101
September.....	127
October.....	151
November.....	188
December.....	225

* Dysentery reported:

July.....	46
August.....	99
September.....	125
October.....	150
November.....	186
December.....	224

Deaths due to dysentery:

July.....	46
August.....	99
September.....	126
October.....	150
November.....	186
December.....	224

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July.....	40
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October.....	139
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July.....	40
August.....	94
September.....	124
October.....	149
November.....	184
December.....	222

* Population, estimated:

July.....	12
August.....	64
September.....	115
October.....	138
November.....	175
December.....	213

Smallpox reported from the provinces:

September.....	130
October.....	155
November.....	191
December.....	228

* Typhoid fever reported (residents only):

July.....	45
August.....	98
September.....	125
October.....	149
November.....	185
December.....	223

Deaths due to typhoid:

July.....	45
August.....	98
September.....	125
October.....	149
November.....	185
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September.....	128
October.....	152
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THE GOVERNMENT OF THE PHILIPPINE ISLANDS
DEPARTMENT OF PUBLIC INSTRUCTION

MONTHLY BULLETIN
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PHILIPPINE HEALTH SERVICE

VOL. II

JANUARY, 1922

No. 1

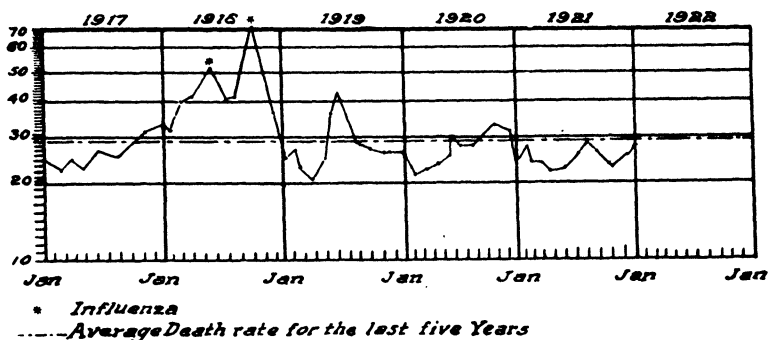
The keystone of a nation's progress is sanitation and education.



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2. Vital Statistics for January.

ANNUAL DEATH RATES BY MONTH CITY OF MANILA



MANILA
BUREAU OF PRINTING
1922

PHILIPPINE HEALTH SERVICE

MANILA, January 5, 1922.

ADMINISTRATIVE ORDER }
No. 1 }

PARAGRAPH 9. The effect of Paragraph 12, Administrative Order No. 8, dated August 12, 1921, is hereby extended for 1922 and same officers are designated to form the Committee as follows:

S. V. DEL ROSARIO, M.D., *Chairman*
J. P. BANTUG, M.D., *Member*
L. LOPEZ RIZAL, M.D., *Member*
M. V. ARGUELLES, M.D., *Member*

V. JESUS,
Director of Health.

IMPORTANCIA DEL REGISTRO DE NACIMIENTOS

En nuestro Decálogo de Salud (Boletín de septiembre, 1921), consignamos como primer mandato, lo siguiente:

I.—PROCURE EL REGISTRO INMEDIATO Y COMPLETO DE CADA NACIMIENTO POR LAS SIGUIENTES RAZONES:

- (a) Para probar la edad.
- (b) Para probar la ciudadanía.
- (c) Para probar el derecho al voto y a la elegibilidad.
- (d) Para solicitar un empleo.
- (e) Para probar los derechos sobre un legado o herencia.
- (f) Para contraer matrimonios.
- (g) Para solicitar pasaporte.
- (h) Para probar si una persona es hijo legítimo o ilegítimo.
- (i) Para ingresar a un colegio o universidad y obtener de ella un grado cualquiera.
- (j) Para cumplir con las órdenes de cualquier corte de justicia.

MONTHLY BULLETIN
OF THE
PHILIPPINE HEALTH SERVICE

VOL. II

JANUARY, 1922

No. 1

**SOME EPIDEMIOLOGICAL FEATURES OF CHOLERA IN
THE PHILIPPINES¹**

By **S. V. DEL ROSARIO, M.D.**

Assistant Director of Health, Chief, Department of Hygiene, University of the Philippines,
and

L. LÓPEZ RIZAL, M.D.

Assistant Chief Statistician and Consulting Epidemiologist, P. H. S.

From the annual report of the Philippine Health Service corresponding to 1916 the following paragraph is transcribed:

"Cholera carriers have been a topic for much speculation. While it was the hope of the medical men in the service that the simple knowledge of the fact of vibrio carrying would be of positive advantage for the control of cholera epidemics, new facts have come to light which make the matter somewhat more difficult, than was at first expected."

The searching for cholera carriers in Manila as a control measure has been started since 1908 and the new facts referred to in the above quotation—(part of the annual report of one of us—Rosario—then the chief of sanitation of Manila) as far as they have been disclosed after several years investigation along this line, in Manila, are:

1. Intermittency in the discharge of bacilli both in carriers and convalescents.
2. The occurrence of greater or lesser number of carriers during certain period of epidemic year.
3. The occurrence of non-agglutinable cholera—like vibrios not only among carriers but also among cases.
4. The change of agglutinable vibrios into non-agglutinable ones and viceversa in the same individual (either cases or carriers) within a certain period of time, and
5. The presence of cholera vibrios in the gall-bladder as disclosed in a good number of autopsies.

Once these facts discovered and repeatedly confirmed by previous investigations, the question arises as to their bearing and significance in the epidemiology of cholera.

THE AGGLUTINATING PROPERTY OF CHOLERA VIBRIO.—As a matter of fact, this property of cholera spirilla has been heretofore taken as the characteristic of the vibrios, there being writers who even deny the

¹ Prepared for the 4th Congress of the Far Eastern Association of Tropical Medicine.

identity between cholera like vibrio without agglutinating property on one hand, and typical agglutinable cholera vibrios (dilution 1.4000) on the other.

Since 1916, on account of a sudden outbreak of cholera with remarkable low mortality, the possibility of vibrio "kegalensis" or Paracholerae (Castellani) playing a role in the causation of cholera was investigated on request of the Council of Hygiene. The investigation as carried out by the Bureau of Science gave the results below transcribed:

1. Out of 688 stool specimens examined 64 were found positive for cholera vibrio, and out of 34 specimens secured from the intestines and gall-bladder (17 each) of dead persons, 12 from intestine and 7 from the gall-bladder were found positives.)

2. Non-agglutinable vibrio were recovered from the intestine of only one individual.

3. This isolated non-agglutinable vibrio does not correspond to Castellani's organism and shows the following characteristics:

- (a) Motility, typically cholera like.

- (b) Morphology, larger and thicker than true cholera with several polar flagella.

- (c) Growth, typically cholera like on Dieudonnee. Does not produce indol, haemolysis on blood-agar. Absolutely no agglutination with a cholera immune serum of a titre of 1-5000 even with undiluted serum, in contradistinction to V. Kegalensis which agglutinates in 1-10 and 1-20 dilutions.

With this only fact as a basis and with no previous definite information as to the extension of non-agglutinable vibrio infection and its role in cholera epidemics, the investigations were furthered and carried on during the following years.

A year after (1917) some facts were established to enable the service to offer some provisional conclusions, which are quoted hereunder.

1. That typical cholera cases with well marked cholera symptoms may be coincident with the presence of certain non-agglutinable vibrio and the absence of the classic agglutinating cholera vibrio.

2. That in a number of both cholera cases (atypical as regards severity) and carriers, the change of the preëxisting vibrio (either agglutinating or non-agglutinating) in to the opposite has been proven with the very significant fact of the absence of the previous form *once the change has taken place and until a new change is observed.*

3. That the maximum period observed between a change and another has been a week or more, while a minimum of 24 hours has also been repeatedly demonstrated.

4. That as far as the present observations are concerned, the available evidence tends to show that the "agglutinating test" as a hard and fast rule of identification of the cholera vibrio is *no longer always* tenable, as agglutinability appears to be a property (active or passive) that can be acquired or lost under unknown circumstances.

5. As regards the comparative frequency of change from one type into the other the facts may be grouped as follows:

- (a) Among cases the change from agglutinable into non-agglutinable is twice as frequent as the opposite change.

- (b) Among carriers the change from agglutinable to non-agglutinable is 1.3 times as frequent as the other change.

The findings as have been established from subsequent investigations seem to confirm the above mentioned provisional conclusions.

This paper being specially prepared to show, (a) the possibility for cholera vibrios to alternately lose or recover their agglutinating properties; (b) the interpretation of the occurrence of non-agglutinating vibrios in cases and carriers during cholera epidemics and (c) the increased number of carriers (either agglutinable or non-agglutinable) during epidemics, all the involved facts and data gathered during the last 4-year investigation are herewith brought for discussion.

I

No question has thus far been raised, in the first place, as to the identity of non-agglutinable vibrios found in Manila with the typical cholera strains as shown by epidemiological, clinicopathological and biological evidences.

Non-agglutinable vibrios were found not only among carriers but also among cases and convalescents. From the data collected during the last 4 years a total of 66 of 716 carriers and 71 out of 1,092 true cases of cholera have been shown to harbor non-agglutinable vibrios. The following table is self explanatory:

TABLE 1.—*Cases and carriers found in Manila by years*

Year.	Cases.		Carriers.	
	Total.	With non-agglutinable vibrio.	Total.	With non-agglutinable vibrio.
1917.....	25	10	245	43
1918.....	182	27	64	6
1919.....	861	34	350	4
1920.....	24	0	57	13
Total.....	1,092	71	716	66

Repeated evidences shown not only by clinical observation but also by some pathological findings in autopsies would thoroughly dispel any doubt with respect to the identity between "agglutinable" and "non-agglutinable" cases.

Biologically, the description of the isolated microorganism, does not differ from the classic cholera vibrio (see description above) except in the loss of agglutinability and the added haemolytic property. However, from the studies of the "El Tor" strain it has been demonstrated that the absence of haemolytic property cannot be held to be characteristic of the true cholera vibrio. This fact is generally accepted at present by Park, Williams, Johnston and others.

The loss of agglutinating property on the other hand is not sufficient reason to deny the identity of this non-agglutinable vibrio with true cholera ones. The facts, as far as evidences in the Philippines concern, showed that agglutinability is a function of the cholera vibrio which may be lost or recovered under unknown circumstances. In some individuals, in Manila, agglutinable vibrios are found alternating with non-agglutinable ones in different examinations of the same individual with the very significant fact that the absence of the former type is clearly noticeable in the same patient in very striking contrast with the presence of the opposite, and *viceversa*.

TABLE 2.—*The participation of an atypical strain of cholera vibrios in the cholera cases in Manila*

Year.	Case.	Examination.						
		First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Seventh.
1917...	1	Non-ag.						
	2	do.	Ag.	Ag.	Ag.	Non-ag.	Non-ag.	
	3	do.	Non-ag.					
	4	do.	do.	Ag.	Non-ag.	Non-ag.	Non-ag.	Non-ag.
	5	do.	do.	Non-ag.	Ag.			
	6	do.						
	7	do.						
	8	do.						
	9	do.						
	10	do.	Non-ag.	Non-ag.	Non-ag.	Ag.		
1918...	11	do.						
	12	do.						
	13	do.						
	14	do.	Non-ag.					
	15	do.						
	16	do.						
	17	do.	Non-ag.					
	18	do.						
	19	do.						
	20	do.						
	21	do.						
	22	do.						
	23	do.						
	24	do.						
	25	do.						
	26	do.						
	27	do.						
	28	do.						
	29	do.						
	30	do.						
	31	do.	Non-ag.	Non-ag.				
	32	Ag.	do.					
	33	Non-ag.						
	34	do.	Non-ag.					
	35	do.						
	36	do.						
	37	do.						
1919...	38	do.						
	39	do.	Non-ag.					
	40	do.						
	41	do.						
	42	do.						
	43	do.						
	44	do.	Non-ag.					
	45	do.						
	46	do.						
	47	do.						
	48	do.						
	49	do.						
	50	do.						
	51	do.						
	52	do.						
	53	do.						
	54	do.						
	55	do.	Ag.					
	56	Non-ag.	Non-ag.					
	57	do.						
	58	do.						
	59	do.						
	60	do.						
	61	do.	Non-ag.	Ag.	Ag.			
	62	do.	Ag.					
	63	do.						
	64	do.						
	65	do.	Ag.					
	66	do.	do.					
	67	do.	do.					
	68	do.	do.					
	69	do.						
	70	do.						
	71	do.						
1920....	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)

* Non-agglutinable case

TABLE 3.—*The participation of an atypical strain of cholera vibrios in the cholera carriers in Manila*

Year.	Carrier number.	Examination.						
		First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Seventh.
1917.	1	Ag.	Non-ag.					
	2	Ag.	Ag.	Non-ag.	Ag.	Non-ag.		
	3	Non-ag.	do.	Ag.	Non-ag.			
	4	do.	do.					
	5	Ag.	Non-ag.					
	6	Non-ag.	do.	Non-ag.				
	7	do.	Ag.	do.				
	8	do.	Non-ag.					
	9	Ag.	do.					
	10	Non-ag.	do.	Ag.				
	11	Ag.	do.	Non-ag.	Ag.	Non-ag.	Non-ag.	
	12	Non-ag.	do.	do.	Non-ag.	Ag.	Ag.	
	13	do.	do.	Ag.	do.	do.	do.	Ag.
	14	do.	do.					
	15	do.	do.					
	16	Ag.	do.					
	17	do.	do.	Ag.	Non-ag.			
	18	do.	do.					
	19	do.	do.	Ag.	Non-ag.			
	20	Non-ag.	do.	Non-ag.	do.			
	21	do.	Ag.	Ag.	do.			
	22	do.	Non-ag.					
	23	Ag.	Ag.	Ag.	Non-ag.	Non-ag.	Ag.	Ag.
	24	Non-ag.	do.					
	25	do.	Non-ag.	Non-ag.	Ag.			
	26	do.	do.					
	27	do.	do.	Non-ag.	Non-ag.			
	28	do.	do.	do.				
	29	Ag.	do.					
	30	do.	do.	Non-ag.				
	31	do.	do.					
	32	Non-ag.	do.					
	33	do.	do.					
	34	do.	do.					
	35	do.	do.					
	36	do.	do.					
	37	do.	do.					
	38	do.	do.	Non-ag.				
	39	do.	do.					
	40	do.	do.					
	41	do.	Ag.	Non-ag.	Ag.	Ag.	Non-ag.	
	42	Ag.	Non-ag.					
	43	Non-ag.	Ag.	Ag.	Ag.			
1918.	44	Ag.	Non-ag.					
	45	Non-ag.	Ag.					
	46	Ag.	Non-ag.					
	47	Non-ag.	do.	Non-ag.				
	48	do.	do.	do.	Non-ag.			
	49	do.	do.	Ag.	Ag.			
1919.	50	do.	do.	Non-ag.				
	51	do.	Ag.					
	52	do.	do.					
	53	do.	do.					
	54	do.						
1920.	55	do.						
	56	do.						
	57	do.						
	58	do.						
	59	do.						
	60	do.						
	61	do.						
	62	do.						
	63	do.						
	64	do.						
	65	do.						
	66	do.						

Park and others on the other hand seem to assume that this property (agglutinability) of cholera vibrio is subject to change according to circumstances, this being the case with the cholera vibrio isolated from water, the agglutinability of which may appear to be lost.

In support of the proposition contained in point (a), Tables 2 and 3, already furnish valuable data showing that the *agglutinating vibrios* may appear and disappear in the same individual (viz., they may turn into "non-agglutinable" and viceversa), and that the property may be lost or regained under unknown circumstances.

The following two episodes seem most interesting in connection with the subject. In the Bilibid Prison of Manila the change of agglutinable vibrios into non-agglutinating ones has taken place in the following prisoners (data taken from Dr. John A. Johnston's publication on "Some Bacteriologic phases of the Cholera Carrier Problem" read before the "IV Asamblea Regional de Médicos y Farmacéuticos" in Manila).

Prisoner No. 8841: positive for agglutinating vibrio on September 12, 1914; then, negative on seven (7) consecutive examinations at intervals of 4 days from same date; released from quarantine, and then reëxamine and found again positive on July 15, 1916 (almost 2 years); negative again until September 10 when he was once more positive; negative until December 31, and positive again January 13 and 18, 1917; then on the 24th, the 25th, 27th, and 30th of January and the 3d of February a "non-agglutinable vibrio" was isolated; on February 7, he was positive again for agglutinating vibrio; on February 10, 15, 17, 20, 22, 27 and March 1, non-agglutinating vibrios were isolated again, to become positive again for agglutinating vibrio on March 3, 6, and 8, and then negative on the 15th of March.

Prisoner No. 11040 was positive for the first time on August 2, 1916, negative until September 22, remained negative on October 19, November 25 and November 29; positive on December 3 and negative again on December 15 and 16. On the 20th of December a "non-agglutinable vibrio" was isolated. On December 23 he was again negative until January 8, 1917 when a non-agglutinable vibrio was isolated, January 11 non-agglutinable vibrio was present, on 18 agglutinating vibrio isolated again and on the 20th, 24th, 25th, and 27th of January non-agglutinable vibrios were demonstrated. On January 30 negative but on February 3 non-agglutinating vibrio was again present. February 7 positive for agglutinable vibrio to change again into non-agglutinable ones on February 10, 15, 17, and 27, March 1 negative, 3d positive, 6th and 8th negative, April 3 and 4 positive and since then negative.

The above two illustrations are very interesting indeed not only because of the changes of agglutinating vibrios into non-agglutinating ones and viceversa in the same individual but also with respect to the length of time a single person may harbor the germ.

A tabulated representation of the changes in each case (prisoner) would be as follows:

PRISONER No. 8841

Date.	Positive for—	
	Agglutinable vibrio.	Non-agglutinable vibrio.
September 12, 1914.....	Positive ¹	
July 15, 1916.....	do	
September 10, 1916.....	do	
January 13, 1917.....	do	
January 18, 1917.....	do	
January 24, 1917.....		Positive.
February 7, 1917.....	Positive	
February 10, 1917.....		Positive.
February 15, 1917.....		Do.
February 17, 1917.....		Do.
February 20, 1917.....		Do.
February 22, 1917.....		Do.
February 27, 1917.....		Do.
March 1, 1917.....		Do.
March 3, 1917.....	Positive	
March 6, 1917.....	do	
March 8, 1917.....	do	
March 15, 1917.....	Negative..	Negative.

Prisoner No. 11040

August 2, 1916.....	Positive	
September 22, 1916.....	do	
December 3, 1916.....	do	
December 15, 1916.....	Negative.	Negative.
December 16, 1916.....	do	Do.
December 20, 1916.....		Positive.
December 23, 1916.....	Negative.	Negative
December 29, 1916.....		Do.
January 8, 1917.....		Positive.
January 11, 1917.....		Do.
January 18, 1917.....	Positive	
January 20, 1917.....		Positive.
January 24, 1917.....		Do.
January 25, 1917.....		Do.
January 27, 1917.....		Do.
January 30, 1917.....	Negative..	Negative.
February 3, 1917.....		Positive.
February 7, 1917.....	Positive	
February 10, 1917.....		Positive.
February 15, 1917.....		Do.
February 17, 1917.....		Do.
February 27, 1917.....		Do.
March 1, 1917.....	Negative..	Negative.
March 3, 1917.....	Positive	
March 6, 1917.....	Negative..	Negative.
March 8, 1917.....	do	Do.
April 3, 1917.....	Positive	
April 4, 1917.....	do	

¹ He was negative from this date until the next examination.

NOTE.—Subsequent examinations resulted negative.

Laboratory experiments have also been carried out in the Philippines showing the change of the agglutinating property of the vibrios into its opposite. Johnston in the above-mentioned publication, speaks of his findings in studying 30 strains of NON-AGGLUTINABLE VIBRIOS WHICH WERE OBTAINED FROM CHOLERA CASES, FROM CARRIERS, AND FROM PRESUMABLY NORMAL INDIVIDUALS WHO WERE IN CONTACT WITH CHOLERA CASES. After explaining the technique of his experiment, goes on to say: "After 40 such transfers, 8 of these previously non-agglutinable strains gave prompt agglutination in 1-500 dilutions. Of these 8 strains, 5 held the acquired property for approximately 3 months. Three in fact lost it after 2 months and none held it for longer than 4 months. These facts were reported at the time as showing that the property of agglutination might be acquired but my belief now is that these strains were true cholera, that had lost the agglutinability."

Other side of the question is WHAT MAY THE SIGNIFICANCE OF THE OCCURRENCE OF NON-AGGLUTINATING VIBRIO BE IN THE EPIDEMIOLOGY OF CHOLERA.

Non-agglutinable vibrio carriers.—Since 1917 up to 1920 within which the presence of non-agglutinating vibrio among cases and carriers have been investigated the following data have been recorded:

TABLE 4.—Cases and carriers in whom non-agglutinable vibrios were detected in one or more examinations

Year.	Cases.			Carriers.		
	Total.	With non-agglutinable vibrios.	Percentage.	Total.	With non-agglutinable vibrios.	Percentage.
1917	25	10	40.00	245	43	17.55
1918	182	27	14.83	64	6	9.37
1919	861	34	3.95	350	4	1.14
1920	24	.....	.....	57	13	22.80
Total	1,092	71	6.50	716	66	9.22

From the figures seen in the above table it is apparent that a certain correlation exists between the proportion of non-agglutinable carriers to the total number of carriers on one side and the total number of cases on the other, a correlation which may be expressed as follows:

“The higher the percentage of non-agglutinable carriers in relation to total carriers, the lower the number of cases of cholera registered and viceversa.”

The above figures may be arranged in the following which more clearly shows this correlation:

TABLE 5

Year.	Cholera cases.	Percentage of non-agglutinable to total carriers.
1919	861	1.14
1918	182	9.37
1917	25	17.55
1920	24	22.80

Similar, though not very apparent is the *inverse relation* observed between the fatality and the proportion of non-agglutinable carriers to total carriers found. This is as striking as the last mentioned correlation which has been observed during the last four years as seen in the following table:

TABLE 6.—Relation between the fatality of cholera and the proportion of non-agglutinable carriers to the total numbers of carriers

Year.	Fatality.	Percentage of non-agglutinable carriers.	Year.	Fatality.	Percentage of non-agglutinable carriers.
1917	32.00	17.55	1919	40.88	1.14
1918	67.58	9.37	1918	67.58	9.37
1919	40.88	1.14	1917	32.00	17.55
1920	12.50	22.80	1920	12.55	22.80

These tables, clear as they are, need, however, some explanatory remarks for its full comprehension. The case of 1918 with 67.58 per 100 fatality and 9.37 per 100 of "non-agglutinable carriers" may appear as in plain conflict with our conclusion. However, if we consider that 1918 was the critical influenzal year in Manila it can safely be assumed that the high fatality of cholera for such year was rather due to the role played by influenza than to any real increased virulence of cholera vibrio strains. A confirmation of this assumption is the fact that the epidemic of 1919, being a continuation of that of 1918, gave a relatively low fatality, which may possibly be accounted for the decreasing prevalence of influenza.

Non-agglutinable vibrio cases.—Other feature of the problem is to find out the relation as it exists between the occurrence of non-agglutinable vibrio cases and the epidemiology of cholera in the Philippines. Our interpretation is that there seems to exist a gradual tendency of the vibrio strains towards "degeneration" as manifested by (1) the alternating appearance of agglutinability or non-agglutinability in the strain, and (2) the persistence in certain cases of non-agglutinating vibrios as such, without undergoing further change into agglutinating ones. The loss of agglutinating property of the vibrios is thus considered to be an index of the *degeneration* of existing strains in one locality, a *degeneration* clearly discernible in the decreased virulence and pathogenicity of the local strain. The following remarks are quoted from the "Annual Report" for 1920 for the city of Manila of which one of us—Rosario—was Chief of Division as giving weighty countenance to the theory of *degeneration*.

(a) The greatly reduced number of "positives" found in 1920 (21.81 per cent as against 82.62 per cent in 1919) out of the whole bulk of "suspects" reported.

(b) The much decreased fatality among "positives" in inverse proportion to the presence of non-agglutinable carriers. (See Table 6.)

(c) The comparatively predominant part played by "non-agglutinable vibrios" in the incidence of the vibrio carrying condition.

(d) The absence of non-agglutinable vibrio cases among positives during 1920 (Table 4) together with the very low fatality observed (12.50 per cent in 1920 as against 40.88 per cent in 1919).

The absence of "*non-agglutinable*" vibrio cases among the positives of 1920 cannot mean any departure from the theory of *degeneration* as just established. In fact, the extremely low fatality observed in the cases of 1920 (12.50 per 100 for 1920 as against 40.88 per 100 for 1919) can but confirm a certain degree of degeneration in the local strain of vibrios, although not so fully developed as to convert agglutinating vibrios into typical "non-agglutinating" vibrios. Conversely, the occurring "non-agglutinating" vibrios have probably undergone such a degree of degeneration as to be comparatively abundant in *carriers* in very striking contrast with their absence among cases, viz., a *degeneration* so advanced as to be marked with a complete *loss* of pathogenicity.

These are the facts as regard the occurrence of non-agglutinable vibrios and its significance in the epidemiology of cholera.

III

Carriers in general.—With respect to the incidence of carriers in general, little can be added to the provisional conclusions advanced in 1916 (Annual Report of the Philippine Health Service) as given below, except that

the evidences gathered during the last 4 years, tend to confirm such conclusion, especially as regards paragraphs (aa) and (cc) thereof:

"The epidemiological interpretation of the variable number of carriers in regard to any actual or threatening epidemic, as far as the experience of the service goes, is as follows:

"(aa) The presence of a comparatively great number of carriers is of decidedly favorable significance as they represent the only available index of a condition of tolerance, if not of immunity (*immunitas non sterilans*, Ehrlich). This does not exclude the possibility of immune people existing showing no trace of being carriers.

"(bb) The danger from a large number of carrier exists only when they are not kept in *isolation*, as in this case they would continue to be a menace not principally to themselves but to unaffected persons.

"(cc) A comparatively small number of carriers, or the lack thereof, has no positive significance, except where coinciding with a great rise in the number of cases, in which event it may be taken as indicating that the process of natural immunization is either disturbed or stopped."

The proposition has also been advanced in previous reports that the increased number of carriers in a locality of times coincides and has a distinct bearing upon the occurrence of correspondingly increased number of cases. While this seems to have been the case during former years (1915-1916), it has not been substantiated during the whole period of time covered by this investigation (1917-1918-1919-1920), as shown in the following table:

TABLE 7.—Cholera cases, deaths and carriers in Manila, by months

Months.	1915			1916			1917		
	Posi- tive vibrio carriers.	Positive.		Posi- tive vibrio carriers.	Positive.		Posi- tive vibrio carriers.	Positive.	
		Cases.	Deaths.		Cases.	Deaths.		Cases.	Deaths.
January.....	54	14	11	32	14	8	23	12	4
February.....	3	20	11	56	9	3	24	6	3
March.....	13	27	18	4	1	0	1	0	0
April.....	5	1	1	13	5	5	17	1	1
May.....				48	46	22	7	0	0
June.....				68	34	15	8	1	0
July.....	4	2	1	206	73	30	1	1	0
August.....	4	1	1	345	320	146	37	4	0
September.....	1			424	388	175	91	0	0
October.....	1			204	81	38	17	0	0
November.....				141	35	8	1	0	0
December.....	2	2	1	104	208	63	18	0	0
Total.....	87	67	44	1,645	1,214	513	245	25	8

TABLE 7.—Cholera cases, deaths and carriers in Manila, by months—Ctd.

Months.	1918			1919			1920		
	Posi- tive vibrio carriers.	Positive.		Posi- tive vibrio carriers.	Positive.		Posi- tive vibrio carriers.	Positive.	
		Cases.	Deaths.		Cases.	Deaths.		Cases.	Deaths.
January.....	14	1	0	5	18	9	6	2	1
February.....	9	0	0	3	5	1	7	2	0
March.....	6	0	0	12	14	5	4	0	0
April.....	4	0	0	4	13	7	5	3	1
May.....	1	0	0	2	5	1	3	3	1
June.....	1	0	0	3	16	8	14	4	0
July.....	0	0	0	120	280	108	14	5	0
August.....	2	0	0	123	277	137	3	2	0
September.....	5	30	12	31	130	49	0	1	0
October.....	11	77	69	32	83	18	0	1	0
November.....	8	55	33	13	15	7	1	1	0
December.....	3	19	9	2	5	2	0	0	0
Total.....	64	182	123	350	861	352	57	24	8

On closing, the consideration of the above facts leads to the following:

SUMMARY

I

The agglutinating property of cholera vibrios may be lost or regained under unknown circumstances in cases and carriers as well as *in vitro*.

II

1. The loss of agglutinating property of any strain of cholera vibrios may be taken as an index of a condition of degeneration.

2. The increased occurrence of non-agglutinating vibrio among cases and carriers means low case fatality.

3. The higher the percentage of non-agglutinable vibrio carriers among total carriers, the lower the incidence of cases.

4. The low fatality registered among cases with agglutinable vibrios coinciding with a high percentage of carriers with non-agglutinable vibrios means also a certain degree of degeneration of spirilla although not so clearly discernible as is the case with typical non-agglutinable vibrios.

III

The greater or lesser number of carriers in general occurring during epidemics has no bearing upon the epidemiology of cholera, except as pointed out in our paragraphs marked (aa), (bb), and (cc) above quoted.

PRACTICAL CONCLUSION

In a thorough survey of cases and carriers of cholera as a part of the preventive campaign against the disease, it would be unwise to ignore or disregard the existence of the so-called "non-agglutinable vibrios," and failure to isolate, quarantine and disinfect persons or things so infected or liable to such infection, would be a distinctly dangerous omission. (Annual Report, Philippine Health Service, 1917.)

GENERAL STATISTICS

[Unless otherwise stated these statistics are for the month of January, 1922.]

ESTIMATED POPULATION OF THE CITY OF MANILA FOR 1922 BY NATIONALITIES.

Nationality.	Population.
Americans.....	3,134
Filipinos.....	271,430
Spaniards.....	1,955
Other Europeans.....	1,126
Chinese.....	17,856
All others.....	2,186
Total.....	297,687

BY DISTRICTS.

Health district.	Population.
No. 1, Intramuros.....	36,602
No. 2, Meisic.....	101,965
No. 4, Sampaloc.....	48,315
No. 5, Tondo.....	78,929
No. 6, Paco.....	31,876
Total.....	297,687

METEOROLOGICAL REPORT FOR MANILA CENTRAL OBSERVATORY DEDUCED FROM HOURLY OBSERVATIONS, JANUARY, 1922

16

Date.	Pres- sure mean. ¹	Temperature.						Relative humidity.							
		In shade. ²						Underground.		Mean.	Daily mean maxi- mum.	Day.	Daily mean mini- mum.	Day.	Per cent.
		Absolute maxi- mum.	Day.	Absolute mini- mum.	Day.	0.50 m.									
						8 a. m.	2 p. m.								
1-10.....	mm. 761.80	°C. 24.1	°C. 31.8	9	°C. 18.1	7	°C. 26.8	°C. 27.1	79.4	86.3	2	74.2	8		
11-20.....	59.49	25.1	32.7	14	20.0	17	26.9	27.2	79.1	85.7	13	76.5	19		
21-30.....	61.51	24.8	33.3	29	18.4	30	26.9	27.3	76.0	85.1	27	70.0	24		
		Wind.						Sunshine.		Rainfall.					
Date.	Prevail- ing di- rection.	Velocity.				Atmidometer (open air). ²		Total.	Daily maxi- mum.	Day.	Rainy days.				
		Total.	Daily total maxi- mum.	Day.	Total.	Daily maxi- mum.	Day.								
		1-10.....	NE	Km. 1,107.0	Km. 165.0	8	mm. 27.4	mm. 4.0	8	h m 40-10	h m 7-55	1	mm. 5.7	3	
11-20.....	SE	1,333.5	187.5	17	31.2	4.4	17	56-35	9-40	17	9.8	8			
21-31.....	E	1,878.0	244.5	31	45.0	5.8	31	55-40	9-15	26	3.0	2			

¹ Corrected for instrumental error and for temperature and reduced to sea level. Correction to standard gravity, -1.72 mm.

² These values are taken from instrument mounted in the Observatory Park, 1.5 meters above ground.

BIRTHS REPORTED IN THE CITY OF MANILA

[Stillbirths not included]

Nationality.	Male.	Female.	Total.	Annual birth rate per 1,000.
Americans.....	5	8	13	48.87
Filipinos.....	633	608	1,241	53.87
Spaniards.....	3	4	7	42.19
Other Europeans.....	3	2	5	52.32
Chinese.....	29	23	52	34.31
All others.....	7	4	11	59.29
Total.....	680	649	1,329	52.60

BIRTHS, BY DISTRICTS

Health districts.	Legitimates.			Illegitimates.			Grand total.	Annual birth rate per 1,000.
	Male.	Female.	Total.	Male.	Female.	Total.		
No. 1, Intramuros.....	104	88	192	8	7	15	207	66.63
No. 2, Meisic.....	105	104	209	5	8	13	222	25.65
No. 4, Sampaloc.....	110	120	230	8	13	21	251	61.21
No. 5, Tondo.....	234	208	442	18	14	32	474	70.76
No. 6, Paco.....	80	81	161	8	6	14	175	64.68
Total.....	633	601	1,234	47	48	95	1,329	52.60

Number of births attended by physician, living, 295; stillbirths, 18.

Number of births attended by midwife, living, 111; stillbirths, 5.

Number of births attended by family, living, 928; stillbirths, 29.

NUMBER OF DEATHS AND DEATH RATE PER 1,000 AMONG RESIDENTS IN THE CITY OF MANILA, BY NATIONALITIES

[Stillbirths not included]

Nationality.	Male.	Female.	Total.	Annual death rate per 1,000.
Americans.....	2	1	3	11.28
Filipinos.....	347	293	640	27.78
Spaniards.....	1	1	2	12.05
Other Europeans.....	2	2	2	20.93
Chinese.....	28	2	30	19.80
All others.....	5	4	9	48.51
Total.....	385	301	686	27.15

TOTAL DEATHS BY SOCIAL CONDITION, INCLUDING TRANSIENTS

Social condition.	Male.	Female.
Married.....	127	94
Divorced.....		
Widowed.....	35	51
Single.....	280	186
Conditions not stated.....	2	
Total.....	444	331
Grand total.....	775	

Stillbirths.....	52
Number of deaths with medical attendance.....	395
Number of deaths without medical attendance.....	380

DEATHS BY AGES IN THE CITY OF MANILA

[Stillbirths not included]

Ages.	Residents.		Transients.		Total.
	Male.	Female.	Male.	Female.	
Under 30 days.....	45	28	1	1	75
30 days to under 1 year.....	78	59	10	7	154
1 year to under 2 years.....	33	23	1	2	59
2 years to 4 years.....	37	37	3		77
5 years to 9 years.....	9	13			22
10 years to 14 years.....	7	3	1		11
15 years to 19 years.....	11	6	2	4	23
20 years to 29 years.....	45	26	7	3	81
30 years to 39 years.....	22	32	12	6	72
40 years to 49 years.....	30	14	8	2	54
50 years to 59 years.....	19	14	6	2	41
60 years to 69 years.....	28	16	2	2	48
70 years to 79 years.....	11	13	1		25
80 years to 89 years.....	5	7	2		14
90 years to 99 years.....	5	1			12
100 years and over.....		2		1	3
Age not stated.....		1			1
Total.....	385	301	56	30	772

One Filipino male of unknown age, American male of 50 years, and one Chinese male of unknown age, permanent residence unknown, not included in this table.

DEATHS AND DEATH RATE PER 1,000, BY DISTRICTS, INCLUDING TRANSFERS

[Stillbirths not included]

Health districts.	Deaths.	Annual death rate per 1,000.
No. 1, Intramuros.....	137	44.10
No. 2, Meisic.....	112	12.94
No. 4, Sampaloc.....	141	34.38
No. 5, Tondo.....	308	45.98
No. 6, Paco.....	77	28.46
Total.....	775	30.67

NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG RESIDENTS IN THE CITY OF MANILA

[Stillbirths not included]

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
I. General diseases.													
1. Typhoid fever.....			19	11					1		1		32
4. Malaria.....			1	2									3
8. Whooping cough.....			1										1
9. Diphtheria and croup.....			2										2
10. Influenza.....			1	2									3
12. Asiatic cholera.....			3	12									15
14. Dysentery.....			5	8							1		16
17. Leprosy.....			1										1
20. Purulent infection and septicaemia.....			3										3
22. Anthrax.....													1
24. Tetanus.....			3	1									4
27. Beriberi.....			1	3									4
27a. Beriberi infantile.....			21	16					1				5
28. Tuberculosis of the lungs.....			70	44					1				115
29. Acute miliary tuberculosis.....			2	2					7	1			12
30. Tuberculous meningitis.....			4	7									11
31. Abdominal tuberculosis.....			2										2
34. Tuberculosis of other organs.....			1	1									2
35. Disseminated tuberculosis.....			2										2
37. Syphilis.....			1										1
40. Cancer and other malignant tumors of the stomach, liver.....			1	2									3
41. Cancer and other malignant tumors of the peritoneum, intestine, rectum.....				1					1				2
42. Cancer and other malignant tumors of the female genital organs.....				4									4
45. Cancer and other malignant tumors of other organs or of organs not specified.....			1	2									3
50. Diabetes.....				1									1
54. Anaemia, chlorosis.....	1			1									2
55. Other general diseases.....			1										1
II. Diseases of the nervous system and of the organs of special sense.													
60. Encephalitis.....													
61. Simple meningitis.....				2									2
(1) Simple meningitis.....	1		13	4					1				19
(2) Cerebro-spinal meningitis (undefined).....			1										1

NUMBER OF DEATHS BY NATIONALITY AND SEX OCCURRING AMONG RESIDENTS IN THE CITY OF MANILA—Continued.

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
<i>II. Diseases of the nervous system and of the organs of special sense—Ctd.</i>													
63. Other diseases of the spinal cord.....	1												1
64. Cerebral hæmorrhage, apoplexy.....			4	2									8
66. Paralysis without specified cause.....			1	2								1	4
68. Other forms of mental alienation.....				1									1
69. Epilepsy.....											1		1
70. Convulsions (nonpuerperal) (5 years and over).....				1									1
<i>III. Diseases of the circulatory system.</i>													
78. Acute endocarditis.....													1
79. Organic diseases of the heart.....			6	5						1			12
80. Angina pectoris.....			3										3
81. Diseases of the arteries, atheroma, aneurysm, etc.....			1							1			2
<i>IV. Diseases of the respiratory system.</i>													
89. Acute bronchitis.....			30	20									51
90. Chronic bronchitis.....			4	8									12
91. Broncho-pneumonia.....			22	22							1		44
92. Pneumonia.....			4	3						2			10
93. Pleurisy.....			2	3									5
96. Asthma.....			2	3									5
<i>V. Diseases of the digestive system.</i>													
99. Other diseases of the mouth and annexa.....													1
102. Ulcer of the stomach.....			1					1					1
103. Other diseases of the stomach (cancer excepted).....				1						1			2
104. Diarrhœa and enteritis (under 2 years).....			20	11									31
105. Diarrhœa and enteritis (2 years and over).....			4	7									11
108. Appendicitis and typhlitis.....				1						2			3
109. Hernia, intestinal obstructions.....				1									1
111. Cirrhosis of the liver.....			3	1									4
117. Simple peritonitis (nonpuerperal).....										1			1
<i>VI. Non venereal diseases of the genito-urinary system and annexa.</i>													
119. Acute nephritis.....			8	4									12
120. Bright's disease.....			8	10						1			19

122. Other diseases of the kidneys and annexa	1	1	1	1	1
123. Calculi of the urinary passages	1	1	1	1	1
129. Uterine tumor (noncancerous)	1	1	1	1	1
130. Other diseases of uterus					1
<i>VII. The puerperal state.</i>					
134. Accidents of pregnancy					2
135. Puerperal hemorrhage			2		
137. Puerperal septicæmia			4		1
<i>VIII. Diseases of the skin and of the cellular tissue.</i>					
142. Gangrene	2				
<i>IX. Diseases of the bones and of the organs of locomotion.</i>					
146. Diseases of the bones (tuberculosis excepted)	1				1
<i>X. Malformations.</i>					
150. Congenital malformations (stillbirths not included):					
(3) Other congenital malformations	1				1
<i>XI. Diseases of early infancy.</i>					
151. Congenital debility, icterus and sclerema:					
(1) Premature birth (not stillborn)	5		1		6
(2) Congenital debility	32		26		58
152. Other diseases peculiar to early infancy:					
(1) Injuries at birth (not stillborn)	1		1		1
(2) Other causes peculiar to early infancy			3		4
<i>XII. Old age.</i>					
154. Senility	10		15		25
<i>XIII. Affections caused by external causes</i>					
155. Suicide by poison					1
172. Traumatism by fall	1		1		1
175. Traumatism by other crushing (vehicles, railways, landslides, etc.)	2			1	3
183. Homicide by cutting or piercing instruments	1				1
185. Fractures (cause not specified)	1				1
<i>XIV. Ill-defined diseases.</i>					
189. Cause of death not specified or ill-defined					.
Total	2	1	347	283	10
Grand total	3		640	30	686

NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG TRANSIENTS IN THE CITY OF MANILA

[Stillbirths not included]

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
I. General diseases.													
1. Typhoid fever			4	1									5
9. Diphtheria and croup			1	1									2
10. Influenza			1										1
12. Asiatic cholera			1										1
14. Dysentery				1									1
17. Leprosy				1									1
27. Beriberi				1									1
27a. Beriberi, infantile				1									1
28. Tuberculosis of the lungs			1	2									3
30. Tuberculous meningitis			10	3					1				14
35. Disseminated tuberculosis			1	1									2
36. Rickets			1										1
40. Cancer and other malignant tumors of the stomach, liver,													
45. Cancer and other malignant tumors of other organs or of organs			2	2									4
not specified			1										1
50. Diabetes													
II. Diseases of the nervous system and of the organs of special sense.													
61. Simple meningitis:													
(1) Simple meningitis				1									1
64. Cerebral hæmorrhage, apoplexy			1	1									2
68. Other forms of mental alienation			1										1
III. Diseases of the circulatory system.													
79. Organic diseases of the heart			1										1
IV. Diseases of the respiratory system.													
89. Acute bronchitis													
90. Chronic bronchitis			4	1									4
91. Broncho-pneumonia													
92. Pneumonia			3	1									4

INFANT MORTALITY

[Stillbirths not included]

Causes of death.	Under 24 hours.	24 hours to under 36 hours.	36 hours to under 48 hours.	48 hours to under 14 days.	14 days to under 1 year.	Total.
Atelectasis of the lungs partial congenital weakness.				1		1
Atelectasis, pulmonary.	1					1
Atrepsia malnutrition.				1	1	2
Beriberi, infantile.				2	39	41
Bronchitis, acute.					33	33
Bronchitis, chronic.					4	4
Bronchitis, capillary.					4	4
Broncho-pneumonia.					14	14
Broncho-pneumonia, severe.					1	1
Broncho-pneumonia terminal dermatitis ex-foliate.					1	1
Broncho-pneumonia terminal ileocolitis, severe.					1	1
Broncho-pneumonia tuberculous.					1	1
Cancrum oris and acute nephritis.					1	1
Cerebral haemorrhage traumatic.					1	1
Congenital debility.	10	4		25	16	55
Diarrhoea and enteritis.					1	1
Empyema.					1	1
Enteritis, acute.					3	3
Enteritis, chronic.					3	3
Enterocolitis.					1	1
Gastritis acute.					1	1
Gastro-enteritis.					2	2
Gastro-enteritis, acute.					7	7
Gastro-enteritis acute and bronchitis.					1	1
Haemophilia.					1	1
Haemophilia meningeal haemorrhage, pre-maturity.				1		1
Heart paralysis.	1					1
Heart paralysis from beriberi.					1	1
Icterus of newborn.					1	1
Malarial fever.					1	1
Malnutrition.					2	2
Marasmus.					3	3
Meningitis, acute.					5	5
Meningitis, simple.					1	1
Meningitis, suppurative.					1	1
Meningitis, tuberculous.				1	2	3
Nephritis, acute.					3	3
Obstruction, intestinal congenital.				1		1
Osteomyelitis.					1	1
Partial atelectasis of the lungs.	1					1
Pleurisy grippal.					1	1
Pleurisy, purulent.					1	1
Pneumonia, acute.					1	1
Pneumonia, lobar.					1	1
Premature birth.	4		1			5
Prematurity, sclerema, generalized.				1		1
Purpura, hemorrhagic.					1	1
Pyelonephritis (tuberculosis renal).					1	1
Rachitis (bronchitis).					1	1
Syphilis, hereditary.					2	2
Tetanus (probably for infection of funis).				1		1
Tetanus umbilical.				2		3
Tumor congenital of the neck probably sarcoma.					1	1
Whooping cough.					1	1
Total.	17	4	1	36	171	229

ANTI-PLAGUE CAMPAIGN IN THE CITY OF MANILA

Number of spring traps set.	22,774
Number of rats caught with spring traps.	3,010
Number of wire traps set.	266
Number of rats caught by wire traps.	0
Number and kind of baits (coconuts).	23,040
Number of poison portions placed.	18,512
Number of rats found poisoned.	202
Number of rats killed by clubs and other weapons.	911
Number of rats found dead from other causes.	498
Total number of rats otherwise caught, found dead or killed.	4,621
Total number of rats sent to the laboratory for examination.	4,621
Total number of rats found positive for plague.	0

Reported.	Health districts.										Total.	
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.			
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.		
Living:												
Male.....	6	0	6	0	6	0	8	2	0	1	29	
Female.....	2	0	4	0	11	2	2	0	3	0	24	
Dead:												
Male.....	0	0	3	0	3	2	0	1	2	1	12	
Female.....	2	0	0	0	1	2	0	2	0	1	8	
Total:												
Male.....	6	0	9	0	9	2	8	3	2	2	41	
Female.....	4	0	4	0	12	4	2	2	3	1	32	
Grand total..	10	0	13	0	21	6	10	5	5	3	73	

Sex.	Health districts.										
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		Total.
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	1	0	5	0	6	3	2	0	2	2	21
Female.....	2	0	1	0	1	3	0	3	1	0	11
Total.....	3	0	6	0	7	6	2	3	3	2	32

Total cases reported within the month.....	88
Provincial cases reported in the city of Manila.....	15
Foreign cases reported in the city of Manila.....	0
City cases reported (residents only).....	73
Total deaths reported within the month.....	37
Deaths among provincial cases reported in Manila.....	5
Deaths among foreign cases reported in Manila.....	0
Deaths among city cases.....	32
Total confirmed as typhoid fever.....	84
Widal reaction.....	45
Blood culture.....	0
Autopsy.....	0
Clinically positive.....	39
Cases confirmed as paratyphoid fever.....	2
Cases not confirmed.....	2

Paratyphoid fever..... Province: 1 case, 1 death.
City: 1 case, 0 death.

¹ All included in the above table.

**DYSENTERIES REPORTED DURING THE MONTH OF JANUARY, 1922 CITY OF
MANILA, RESIDENTS ONLY
CASES.**

Reported.	Health districts.										Total
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	0	0	4	1	1	0	1	0	1	0	8
Female.....	2	0	1	0	0	0	0	0	0	0	3
Dead:											
Male.....	0	0	2	1	0	0	0	1	0	0	4
Female.....	0	0	0	3	0	2	1	2	1	0	9
Total:											
Male.....	0	0	6	2	1	0	1	1	1	0	12
Female.....	2	0	1	3	0	2	1	2	1	0	12
Grand total..	2	0	7	5	1	2	2	3	2	0	24

DEATHS.

Sex.	Health districts.										Total
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	0	0	4	1	0	0	0	0	0	0	5
Female.....	0	0	0	3	0	2	0	4	1	0	10
Total.....	0	0	4	4	0	2	0	4	1	0	15

Total cases reported within the month.....	30
Provincial cases reported in the city of Manila.....	6
City cases (residents only).....	24
Total deaths reported within the month.....	16
Deaths among provincial cases reported in the city of Manila.....	1
Deaths among city cases.....	15
Reported as:	
Amoebic dysentery.....	2
Acute dysentery.....	2
Bacillary dysentery.....	6
Chronic dysentery.....	1
Dysentery.....	18
Erroneously reported as dysentery.....	1
Total.....	30

**CONFIRMED CHOLERA CASES REPORTED DURING THE MONTH OF JANUARY
1922, CITY OF MANILA, RESIDENTS ONLY
CASES.**

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	4	0	7	0	4	0	5	0	2	0	22
Female.....	3	0	3	0	11	0	5	0	2	0	24
Dead:											
Male.....	0	0	0	0	0	2	0	0	0	0	2
Female.....	0	0	0	1	0	8	0	0	0	0	9
Total:											
Male.....	4	0	7	0	4	2	5	0	2	0	24
Female.....	3	0	3	1	11	8	5	0	2	0	33
Grand total..	7	0	10	1	15	10	10	0	4	0	57

DEATHS.

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	0	0	1	0	1	2	0	0	0	0	4
Female.....	0	0	1	0	2	8	1	0	0	0	12
Total.....	0	0	2	0	3	10	1	0	0	0	16

Total cases reported within the month.....	78
Provincial cases reported in Manila (confirmed).....	6
Foreign cases reported in the city of Manila.....	0
City cases reported (residents only).....	72
City cases confirmed as cholera.....	57
City cases not confirmed (found negative).....	15
Total deaths reported within the month.....	28
Deaths among provincial cases reported in Manila.....	1
Deaths among foreign cases reported in Manila.....	0
Deaths among city cases.....	22
City deaths confirmed as cholera.....	16
City deaths not confirmed.....	6
Cholera carrier—204 living, and 85 dead bodies.	

DIPHTHERIA REPORTED DURING THE MONTH OF JANUARY, 1922, CITY OF MANILA, RESIDENTS ONLY

CASES

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	2	0	2	0	0	0	1	0	0	0	5
Female.....	2	0	1	0	2	0	0	0	0	0	5
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total:											
Male.....	2	0	2	0	0	0	1	0	0	0	5
Female.....	2	0	1	0	2	0	0	0	0	0	5
Grand total..	4	0	3	0	2	0	1	0	0	0	10

DEATHS

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	1	0	1	0	0	0	0	0	0	0	2
Female.....	0	0	1	0	0	0	0	0	0	0	1
Total.....	1	0	2	0	0	0	0	0	0	0	3

Total cases reported within the month.....	12
Provincial cases reported in Manila.....	2
City cases reported (residents only).....	10
City cases confirmed as diphtheria.....	8
City cases not confirmed.....	2
Total deaths reported within the month.....	4
City deaths confirmed.....	3
City deaths not confirmed.....	0
Deaths among provincial cases reported in Manila.....	1
Diphtheria carrier—1 living.	

OTHER COMMUNICABLE DISEASES REPORTED IN THE CITY OF MANILA DURING THE MONTH OF JANUARY, 1922, RESIDENTS ONLY

Diseases.	Cases.	Deaths.
Smallpox.....	0	0
Varioloid.....	0	0
Varicella.....	42	0
Measles.....	11	0

NOTE.—Four (4) provincial cases of varicella reported in the city of Manila, not included in this table.

REPORT ON THE DISTRIBUTION OF ASSORTED SERA AND VACCINES

Sera and vaccines.	On hand Jan. 1, 1922.	Received during the month.	Total to be account- ed for.	Distributed during the month.	Remaining at the end of the month.
Anti-diphtheric serum (units).....	647,000		647,000	200,000	447,000
Anti-dysenteric serum (ampoules).....	20		20	2	18
Anti-tetanic serum (units).....		834,000	834,000	834,000	
Cholera vaccine (c.c.).....	40,340	152,170	192,510	183,260	9,250
Gonococcus vaccine (ampoules).....		340	340	340	
Normal horse serum (ampoules).....		120	120	120	
Typhoid and paratyphoid vaccines (am- poules).....	8,390	1,000	9,390	7,640	1,750
Vaccine virus (units).....	94,000	250,000	344,000	255,700	88,300

SMALLPOX VACCINATIONS IN THE CITY OF MANILA, DURING THE MONTH OF JANUARY, 1922

Health districts.	Total vaccina- tions.	Total inspec- tions.	Positive.	Negative.
No. 1, Intramuros.....	1,862	159	127	32
No. 2, Meisic.....	3,746	430	351	79
No. 4, Sampaloc.....	5,489	244	207	37
No. 5, Tondo.....	1,848	382	331	51
No. 6, Paco.....	1,204	228	183	45
Total.....	14,099	1,443	1,199	244

CONSOLIDATED CHOLERA VACCINATIONS FOR THE MONTH OF JANUARY IN THE CITY OF MANILA

Districts.	Number of persons vaccinated.								Total.
	Males.				Females.				
	Double injections.		Single injections.		Double injections.		Single injections.		
	A.	C.	A.	C.	A.	C.	A.	C.	
No. 1, Intramuros			3,663	852	1		1,512	816	6,844
No. 2, Meisic.			5,946	3,854			3,407	2,515	15,722
No. 4, Sampaloc.			2,621	4,124			2,385	3,848	12,428
No. 5, Tondo.			3,366	4,100			3,058	3,583	14,107
No. 6, Paco.	115	65	1,983	4,387	105	64	1,511	3,316	11,546
Total.	115	65	17,579	17,317	106	64	11,823	13,578	60,647

NOTE.—A, means adults; C, children.

CONSOLIDATED TYPHOID VACCINATIONS FOR THE MONTH OF JANUARY IN THE CITY OF MANILA

Districts.	Number of persons vaccinated.				Total.
	Males.		Females.		
	Adults.	Children.	Adults.	Children.	
No. 1, Intramuros.....	105	30	61	33	229
No. 2, Meisic.....	184	2	127	4	317
No. 4, Sampaloc.....	31	9	20	7	67
No. 5, Tondo.....	14	10	52	20	96
No. 6, Paco.....	21	22	38	154	230
Total.....	355	73	293	218	939

TOTAL VACCINATIONS OF SMALLPOX IN THE PROVINCES FOR THE YEAR, 1922¹

Provinces.	Vaccina- tions.	Inspec- tions.	Positive.	Negative.
Bohol.....	4,662	4,033	2,641	1,397
Bulacan.....	2,695	1,887	1,485	402
Ilocos Norte.....	2,115	1,689	752	937
Iloilo.....	8,961	5,194	3,822	1,372
Laguna.....	1,198	923	676	247
La Union.....	2,051	1,215	478	737
Masbate.....	699			
Mindoro.....	1,533	1,244	761	483
Nueva Ecija.....	316	306	240	66
Palawan.....	149	149	46	103
Pampanga.....	1,740	903	683	220
Tarlac.....	1,153	1,000	677	323
Total.....	27,272	18,548	12,261	6,287

¹ Compilation of reports received from Jan. 1st to date.

NOTE.—Other provinces reported not yet received.

CONSOLIDATED CHOLERA VACCINATION REPORTED FROM THE PROVINCES FOR THE MONTH OF JANUARY, 1922

Provinces.	Week ending 7th.		Week ending 14th.		Week ending 21th.		Week ending 28th.		Total.	
	A.	C.	A.	C.	A.	C.	A.	C.	A.	C.
Abra.....	743	344	764	330	771	340	871	383	3,149	1,397
Batangas.....	53	44							53	44
Cavite ¹	87	13	1,062	8	173	493			1,322	514
Iloilo.....	20	25	35	71	59				114	96
Laguna.....	268	34							268	34
La Union ¹	295	158							295	158
Mindoro.....	56	15	111	91					167	106
Nueva Ecija.....	63	35							63	35
Pampanga.....	57	34	424	456	396	229	507	512	1,384	1,231
Tarlac.....					519	104			519	104
Zambales.....					206	191	250	163	900	624
Total.....	1,818	840	2,664	1,088	2,124	1,357	1,628	1,058	8,234	4,343

¹ Report not complete.

NOTE.—A, means adults; C, children.

Other provinces report not yet received.

CONSOLIDATED TYPHOID VACCINATION REPORTED FROM PROVINCES FOR THE MONTH OF JANUARY

(Reports not received)

SMALLPOX REPORTED FROM THE PROVINCES, FOR THE MONTH OF JANUARY, 1922

Provinces and towns.	Cases.	Deaths.
Oriental Negros:		
Siaton.....	23	
Total.....	23	

CHOLERA REPORTED FROM THE PROVINCES, FOR THE MONTH OF JANUARY, 1922.

Provinces and towns.	Cases.	Deaths.
Cavite:		
Cavite	1	1
Cebu:		
Cebu	* 1	
Rizal:		
Binangonan	10	10
Caloocan	1	
Navotas	1	1
Pasay	4	
Pasig	2	2
Zambales:		
Palauig	5	3
Total	25	17

* Foreign cases.

JUL 19 1922

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THE GOVERNMENT OF THE PHILIPPINE ISLANDS
DEPARTMENT OF PUBLIC INSTRUCTION

MONTHLY BULLETIN
OF THE
PHILIPPINE HEALTH SERVICE

VOL. II

FEBRUARY, 1922

No. 2

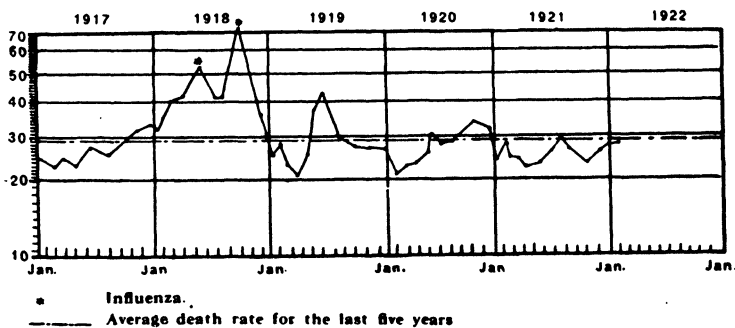
The keystone of a nation's progress is sanitation and education.



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ANNUAL DEATH RATES BY MONTH, CITY OF MANILA



MANILA
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1922

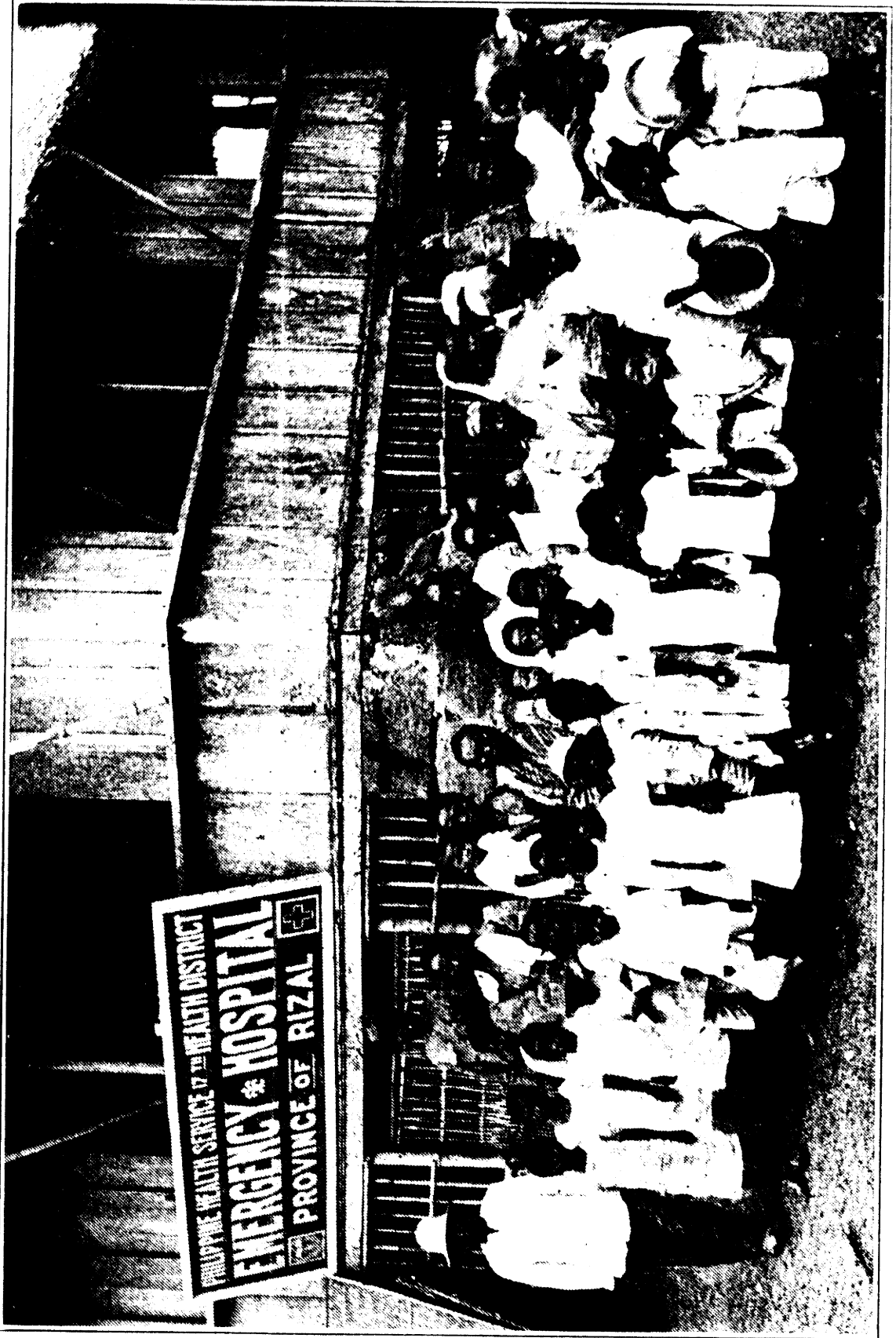
COMMITTEE ON THE MONTHLY BULLETIN, P. H. S.

S. V. DEL ROSARIO, *Assistant Director of Health, Chairman*
J. P. BANTUG, *Senior Medical Inspector, P. H. S., Member*
L. LOPEZ RIZAL, *Senior Medical Inspector, P. H. S., Member*
M. V. ARGUELLES, *Senior Surgeon, P. H. S., Secretary*

INSIST ON BREAST FEEDING OF INFANTS

1. Breast milk is nature's food for the baby as it contains all the elements necessary for its growth and development.
2. Breast milk contains the correct percentages of proteids, fats, carbohydrates, and mineral salts necessary for proper digestion in infancy.
3. Under normal conditions, breast milk is practically sterile and entirely free from pathogenic bacteria, as it is taken directly from mother to baby.
4. Breast milk is cheaper, always fresh, and delivered at the proper temperature.
5. Infants fed upon proprietary foods may be fat but weak and yield quickly to disease.
6. Gastro-Intestinal disturbances are more common and more serious among artificially fed children.
7. The act of suckling exerts a beneficial influence upon the involution of the mother's uterus.
8. Any other milk, while it contains the same ingredients as human milk, these are present in quite different proportions. By its dilution, the proportion of the constituents is made about right while that of others is greatly reduced thus lowering the food value of the milk as a whole.
9. Canned milk or proprietary foods may not contain the necessary elements for proper growth.
10. The ignorance of the majority in the proper handling and preparation of the nursing bottle makes artificial feeding dangerous for the health of the baby.





MONTHLY BULLETIN

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No. 2

REPORT OF THE COMMISSION FOR THE SUPPRESSION OF YAWS IN PARAÑAQUE¹

By Dr. PERFECTO GUTIERREZ, *officer incharge of venereal clinics,
Philippine Health Service*

The town of Parañaque is situated directly south of Manila, along the Manila South Road and along the eastern coast of Manila Bay. It extends from Kilometer 6.5 to Kilometer 12 of the main road mentioned.

Parañaque is composed of the barrios of San Dionisio, Tambo, Dungalo, Ibayo, La Huerta, and Baclaran, and has a total population of 8,541.1. Except the barrio of Ibayo, which is on the eastern side of the Parañaque Estero, all of the barrios mentioned border on Manila Bay.

Of the barrios mentioned above, San Dionisio is the most heavily infected, there being 134 cases treated from this locality out of the 275 cases treated altogether; or 48.72 per cent of the cases were from this barrio. The number of cases treated from each of the six barrios is shown in the following table:

TABLE I

	Per cent.
San Dionisio.....	134 or 48.72
Dungalo	61 or 22.18
Baclaran	84 or 12.86
La Huerta.....	25 or 9.09
Tambo	11 or 4.00
Ibayo	10 or 3.65

The object of the present Commission is to try to eradicate this focus of infection so near Manila. Such being the case, the different aspects of the disease could not be studied as was desired.

PREVALENCE AND TRANSMISSION OF THE DISEASE

The disease seems to prevail among the poor. Our cases show only two from families of the better class that have been infected. The disease is probably transmitted more by direct contact than by any other means, for out of 258 cases in which the mode of infection was recorded, in 132 the disease was contracted either from relatives or from playmates. A close personal contact, therefore, seems necessary. Many of the cases coming to the clinic are still infected with scabies and not a few of their

¹ Personnel of the Commission: Dr. P. GUTIERREZ, *Chairman*; Dr. L. FERNANDEZ, *Assistant*; Miss B. KATANJAL R. N., *Nurse*.

Dr. J. GUIDOTE, attending the clinic on clinic days, helped us give the injections. Drs. SELLARDS and GOODPASTURE given permission to study the Wassermann reaction of these cases helped us give the injections also.

mothers insist that the infection started from one of these lesions. Undoubtedly, this fact and the uncleanness of these children serve to give a foothold to the disease.

Whether or not the fact that this town is located along the sea-shore has anything to do with the prevalence of the disease in this locality will have to be investigated further, but it is known that inhabitants of towns bordering a body of salt-water body of, or towns reached by the ebb of the tide, harbor the disease; while interior towns are free from it except such individuals as are infected by the sea-coast towns. This fact has also been the observation of McCarthy¹ in the Chindwin District of Upper Burma, but he attributes the condition to the communicability of these towns rather than to an inherent peculiarity of these towns. This portion of the work was taken up by Drs. Hernando and Lopez, whose report may throw some light on the subject.

SEX INCIDENCE

Males seem to be slightly more predisposed to the disease than are females, probably because of the fact that boys play around more than do girls. Of 271² cases in which the sex was recorded, 144 were in male and 127 in female cases.

AGE INCIDENCE OF THE DISEASE

In the majority of the cases, in the infectious stage, the disease was found affecting children more than adults. Thus, of the 257 cases in which the age was recorded, fully 226 occurred in children and adolescents, or 87.93 per cent of the disease was found in children and adolescents. If the census of those individuals suffering from the disease in the tertiary stage were taken, the reverse would probably be found. It would have been interesting to figure out to what extent the population is infected with the disease, but our data is not sufficient to enable us to do this computation. The Sanitary Commission,³ headed by Dr. Bantug in 1915, reports, however, that the prevailing disease is yaws.

AGE INCIDENCE OF THE DISEASE

TABLE II

Total number of cases.	Ages.						
	12 months.	13 months to 24 months.	25 months to 5 years.	6-10 years.	11-15 years.	16-20 years.	Beyond 21 years.
257 ⁴ -----	9	24	54	84	48	7	31
Percentages -----	3.89	9.83	21.01	48.4	18.67	2.72	12.0

From the foregoing table it will be seen that the age incidence increases in direct proportion to the age up to and between the age of six and ten years; however, the number of cases occurring between the ages of twenty-five months and five years is already considerable as well as the number of those occurring between the ages of eleven and fifteen, so that the infection seems to occur before the individuals reach the adult age.

¹ Report on the Prevalence of Yaws in the Lower Chindwin District Upper Burma. PA. McCarthy, 1906, Journ. Trop. Med. and Hygiene 41:53.

² In four cases the sex was not recorded.

³ Report of the Sanitary Commission of Parañaque, Rizal, privately published by the Philippine Health Service, 1915: 13.

⁴ Of the 275 cases treated, the age was not recorded in four; and of the 45 adult cases, 14 were in the tertiary non-infectious stage.

There were forty-five adult cases treated; but of these, only thirty-one presented lesions in the infectious stage, the other fourteen showed lesions in the tertiary stage. These were only treated so that the lesions might be studied. They are not included in our table of age incidence.

THE COURSE OF THE DISEASE

The disease has been arbitrarily divided into three stages: the primary, secondary, and tertiary. To the present Harper⁵ is the only one who reports presumptive quarternary stages of the disease. He does not give confirmatory evidences, such as undoubtedly yaws infection, or absence of syphilitic disease.

THE PRIMARY LESION

The incubation period lasts from two to four weeks when the primary lesion appears. This primary lesion is manifested, according to Caste-



FIG. I

Frambesiform type of primary stage. Scab taken off.

llani,⁶ as a papule, which becomes moist after one week and is then covered by a yellow secretion. This secretion dries up forming a crust. If the crust is at this time removed, an ulcer will be found with granulating fundus and clean edges. This lesion is often painful; and through secondary infections of pyogenic organisms, the neighboring glands may be enlarged and painful. These different types of primary lesions have been noted in our cases. Thus, the frambesiform lesions are illustrated in Figure I. When the scab is taken off the ulcers may be seen illustrated in Figures II and III.

⁵ P. Harper-Lancet, 1916, page 678. Late sequelæ of Frambesia.

⁶ Castellani and Chalmers—"A Manual of Tropical Medicine," Wm. Wood and Co. Third Ed., p. 1535.

The primary lesions may develop upon any ulceration or abrasion of the skin, and are usually extragenital. The primary lesion may heal before the secondary eruptions appear, but as a rule it is still present when the secondary eruptions are observed. On the other hand, the primary sore may last for several months.

The primary lesion was observed to be still present in the majority of our cases, when the secondary eruptions made their appearance. Where the primary lesion healed, the time varied from one month to one and



FIG. II

Case TE. Aged 9 years. Primary stage, three weeks. Left foot. Frambesiform; no secondaries.

a half years. In the majority of the cases, however, the primary lesion healed in one year. In some cases, where the primary lesion was still present, it was noted six years from the beginning of the infection, at the time the patient was given treatment.

There are six primary lesions in which all signs of the secondary lesions have entirely disappeared and yet the primary lesions were still active. The disease has been present in these cases for, from two to six years. These cases did not do well when treated with salvarsan; that is, they required more than one or two injections of the drug before the primary lesions healed.

THE SECONDARY LESIONS

As has been mentioned above, the prime object of the Commission was to eradicate the focus of infection. There was, therefore, not sufficient time to inquire minutely into the histories of the cases; moreover, even had we the time to do so, it would have been futile to try to determine just when the secondary eruptions first appeared in the class of patients we dealt with in the clinic. In many cases the secondary eruptions have been present for sometime, that the patients can not recall when the eruptions first appeared. In the few that this could be ascertained the usual

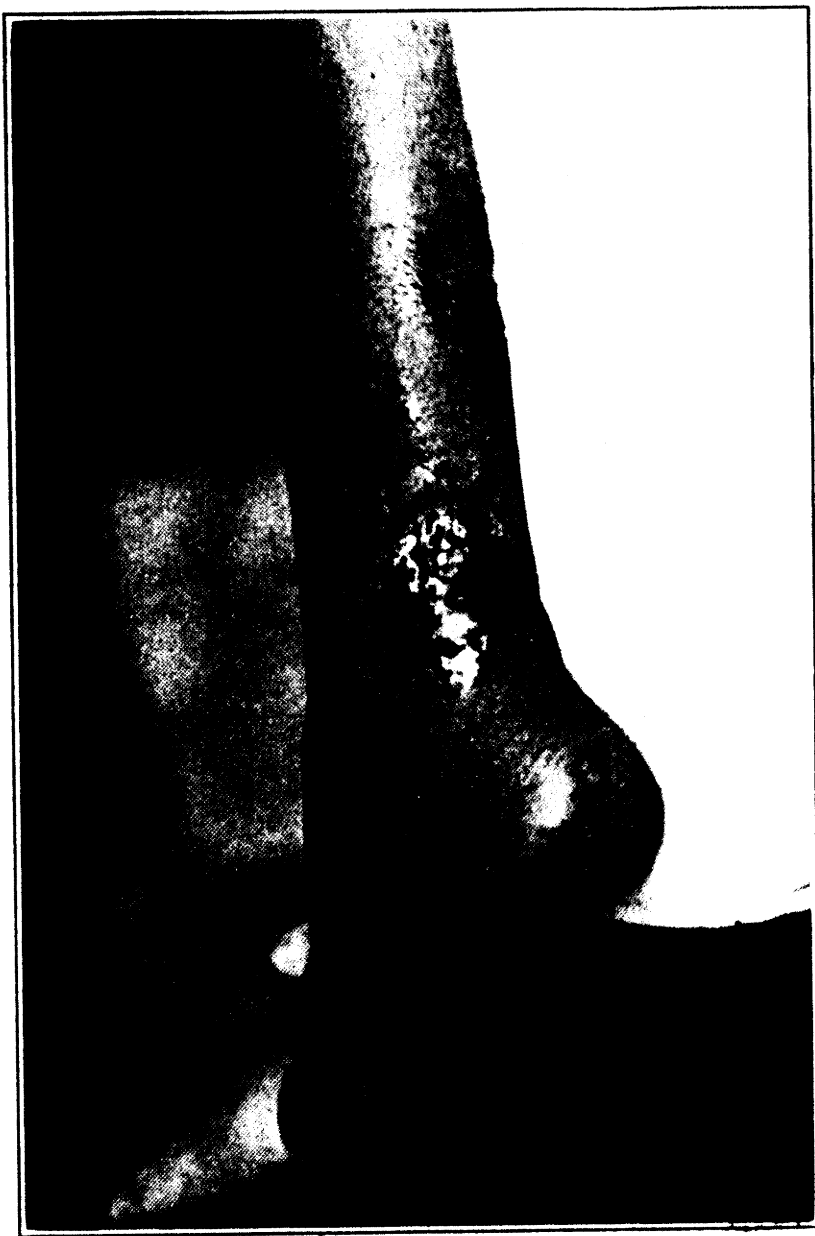


FIG. III

Case 59. Aged 10. Female. Duration of disease, 3 years.

time for their appearance was observed; that is, from one to three months after the primary sore was noted. The secondary eruptions are preceded by symptoms of invasion of the system. These are malaise, fever, and pain in the muscles, joints, and bones.

According to the generally accepted view, the secondary eruptions are of two forms, the papules and the nodules. Either of these may appear independent of the other. When, however, they occur together, the papules usually precede the nodules. Our observations, however, lead us to believe that there are more than these two types of secondary eruptions found in the secondary stage of the disease.

THE NODULAR OR FRAMBETIC LESIONS

The frambetic form of eruption is the lesion most commonly observed in the disease. As may be seen from Table III, it was observed 159 times in 196 cases studied, or in 81.12 per cent. This type of eruption is so well known and has been so well described that little can be added to its description. (See Figures IV, V, and VI.) They may develop from the papular eruptions, *vide infra*, or they may appear as such. When fully developed they vary in size from the head of a match to that of a quarter or larger. (Fig. VI). They are raised from two to three millimeters from the surface of the skin. The surface of the lesion is studied with verrucous-like projections and is covered with iodoform-like scab. If the scab is taken off, the surface will be found red, and raw, and in some places minute bleeding points may be seen. These lesions may appear anywhere in the body. They are, however, less common on the head. They may remain of the same size for a long time, and then the secretion dries up and the lesion finally disappears in from three months to a year. We have observed these lesions to occur in crops, each crop healing in the time indicated but sometimes succeeded by another crop. In this way two or three or four crops may appear before the lesions finally disappear. In one of our cases, these frambetic eruptions kept on appearing and disappearing to the time of treatment, twenty years after the appearance of the primary sore, and were accompanied by tertiary keratosis of the palms and soles. The two secondary eruptitons were found on the forearm and leg, after they had appeared one month and three months previously.

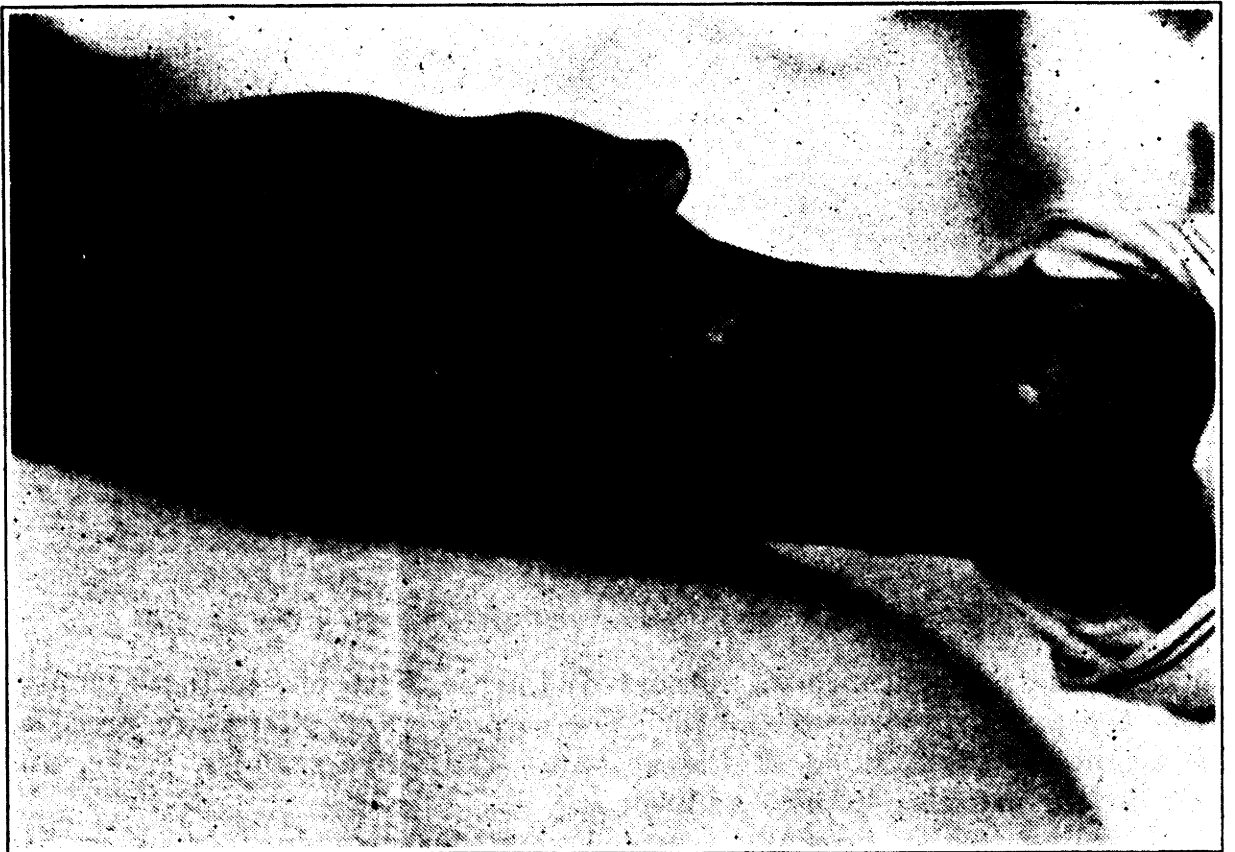


FIG. IV

Case 66. Aged 8. Male. Mother yaws 3 mos. Secondaries two weeks after appearance of primary. Frambesiform.



FIG. V

Case 66. Same as Figure IV. Note size and verrucous appearance of surface.

CHARACTER OF THE SECONDARY ERUPTIONS

TABLE III

Number of cases	Fram- besi- form	Papu- lar	Macu- lar	Fram- besi- form papu- lar	Macu- lar papu- lar	Fram- besi- form macu- lar	Fram- besi- form papu- lar macu- lar	Ichthy- tic shins	Palmar and plantar	Moist papu- les
196 (')	159	3	6	15	2	2	6	1	2	.....
Percentages.....	81.12	1.54	3.06	7.65	3.92	3.92	3.06	0.51	3.92	.....
Lesions found with other secondaries.....								2	11	2
Percentages.....								1.54	6.63	3.92

When the frambetic eruptions are on moist surfaces, such as the genitals, anus, and axilla, or under the mammae in women, the eruption then assumes the character of a moist papule which is not unlike the syphilitic moist papule (Fig. VII). As may be seen from the foregoing table, this type of lesion is not so uncommon.

PALMAR AND PLANTAR LESIONS

Palmar and plantar secondary lesions are observed thirteen times in 196 cases, or in 6.63 per cent. As illustrated in Figures VIII and IX, they are not unlike palmar and plantar syphilides. Their manner of production is well shown in Figure IX.



FIG. VI

Case 102. Primary lesion, 8 months. Secondaries, 4 months. Frambesiform in character. Moist papules about genitals.

HISTOLOGY

The histology of the frambetic type of secondary lesions has been described by Uma,¹ MacLeod,² Jeansalme,³ and Phlen,⁴ and more recently by Schuffner,⁵ Marshall,⁶ Seiber,⁷ Ashburn and Craig,⁸ White,⁹ and lately by Schamberg.¹⁰

In brief, the histological findings are:

1. There is a thick crust composed of necrotic material, leucocytes, and bacteria.

¹ Unna, "The Histopathology of the Diseases of the Skin."

² MacLeod, 1902. "British Medical Journal."

³ Jeansalme, 1903. "Dermatology Exotique."

⁴ Phlen, 1906. Mense's "Handbuch der Tropenkrankheiten."

⁵ Schuffner, 1907. Munchen "Med. Wchnsch." 54: 1364.

⁶ Marshall, 1908. "Philippine Journal of Science," Vol. 2: 107 Sec. B.

⁷ Seibert, W., 1908. "Arch. Fur Schiffs und Tropen Hygiene."

⁸ Ashburn and Craig, "Philippine Journal of Science" 1908 B.

⁹ White and Tyzzer, "Jour Cut. Diseases" 1911 29: 138.

¹⁰ Schamber and Klauder, "Arch. Dermat. and Syphilis." Vol. B: 49 No. 1.

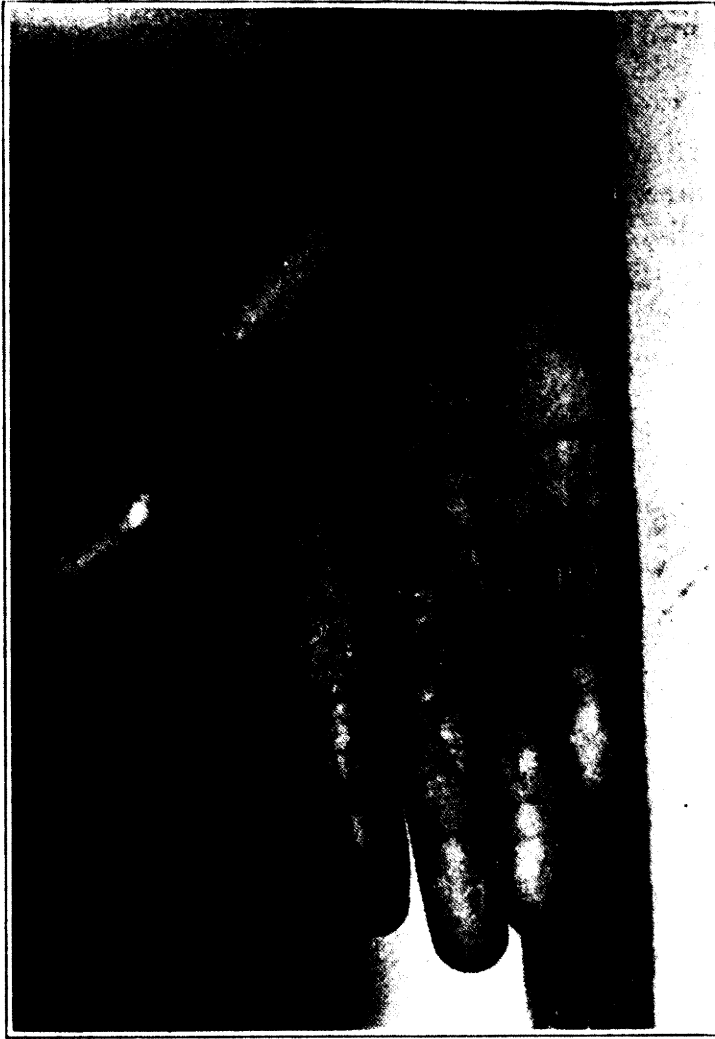


FIG. VII

Case 54. Palmar secondaries, 8 months duration—Primary, 5 months. Healed in 3 months. Macular eruption, 3 months after appearance of primary; numerous on face, forearms, trunk. Some may be seen on the wrist in the picture above. Papular eruptions, 5 months after.



FIG. VIII

Palmar secondaries.

2. There is a marked proliferation of the rete especially of the pegs, which dip down into the papillary layer. The supra-papillary layer is also increased in thickness.

3. There is swelling and vacuolation of the epithelial cells. The nuclei in places are separated from the protoplasm by clear spaces. In places these epithelial cells are changed; they do not take stains well.

4. The intercellular spaces, in places, are infiltrated with leucocytes, chiefly of the polymorphonuclear type. In places, sharply circumscribed areas in the epidermis contain this leucocytes and detritus, the miliary abscesses.

5. There is a marked edema of the corium in the papillary and sub-papillary layer.

6. There is an infiltration of polymorphonuclear leucocytes, lymphocytes and a few plasma cells. This infiltration is limited to an area below the rete pegs.

7. In older nodules the infiltration is made up chiefly of plasma cells.

8. There is no perivascular-cell infiltration or endothelial proliferation. There are no giant cells.

PAPULAR ERUPTIONS

The papular form of secondaries occur oftener than the macular, *vide infra*, as indicated in Table III. This type of eruption is a flat papule, varying in size from a pin's head to the head of a match. The apex is red when first formed, but later is covered with the typical iodoform-yellow scab. The lesions are discrete; they may remain of the same size for weeks and finally disappear or later develop into the typical frambetic eruptions, as shown in Figure I. As may be seen from Table III, they are not so rare. Occurring as primary lesions, without the intermixture of other secondary lesions, they are found in 1.54 per cent; but when found together with other lesions, as is usually the case, they are found to occur in 12.25 per cent. They are not often found alone, but are seen mixed with the frambetic lesions.

THE MACULAR ERUPTION

Investigators who have studied this disease do not always accept as final the occurrence of this type of eruption; some believe it to occur before any other type of lesions, while others are of the opinion that it follows the disappearance of papular lesions. Castellani⁶ merely states that other lesions besides the frambetic granulomatous lesions appear. In another place, he says that when the papular eruptions disappear, they leave occasionally some furfuraceous patches. Nicholls, quoted by Rat,¹¹ takes exception to the presence of this type of lesion. Maxwell¹² describes a scaly eruption in yaws "not unlike pityriasis versicolor" as one of the "precursive eruptions in yaws," and is of the opinion that there is undoubtedly a "papulo-squamous eruption which sometimes persists long after the disappearance of the general eruption, especially about the elbows and knees where they simulate psoriasis." Bowerbank, quoted by Rat,¹¹ says that "these patches or blotches are of a brownish or dark-red color efflorescence. From these patches small, pimple-like bodies of a

⁶ Marshall, 1908. "Philippine Journal of Science," Vol. 2: 107 Sec. B.

¹¹ Rat, "A Paper on Yaws." Journ. Trop. Med. and Hygiene 5: 209.

¹² Maxwell, "Jour. Trop. Med." 8: 82.



FIG. IX

Case 126. Primary right breast. Secondaries macular and few frambesiform. Plantar and palmar lesions, frambesiform.



FIG. X

To illustrate the histopathology of frambetic lesions.

dark color arise and project above the cuticle." Schuffner⁵ describes macular lesions surrounded by minute papules often becoming vesicular.

In our experience these macular eruptions are not preceded by any secondary eruptions, nor are they always precursive of other frambetic eruptions; but are a primary and distinct type of secondary eruption, similar to the macular eruptions of the secondary stage of syphilis (Fig. XI). They are discrete, macular, lighter in color than the surrounding skin, and varying in size from the head of a match to a lima bean or larger. They are covered by fine fururricaceous white scales. These scales are easily detached; and when the case is seen in the clinic; only a few of these scales are present on the surface. Around the follicles, however, they are closely packed, giving the appearance of a follicular lesion (Fig. XII). Two or more of these lesions may coalesce, forming bigger patches as shown in Figure XI. These lesions remain for weeks as such,

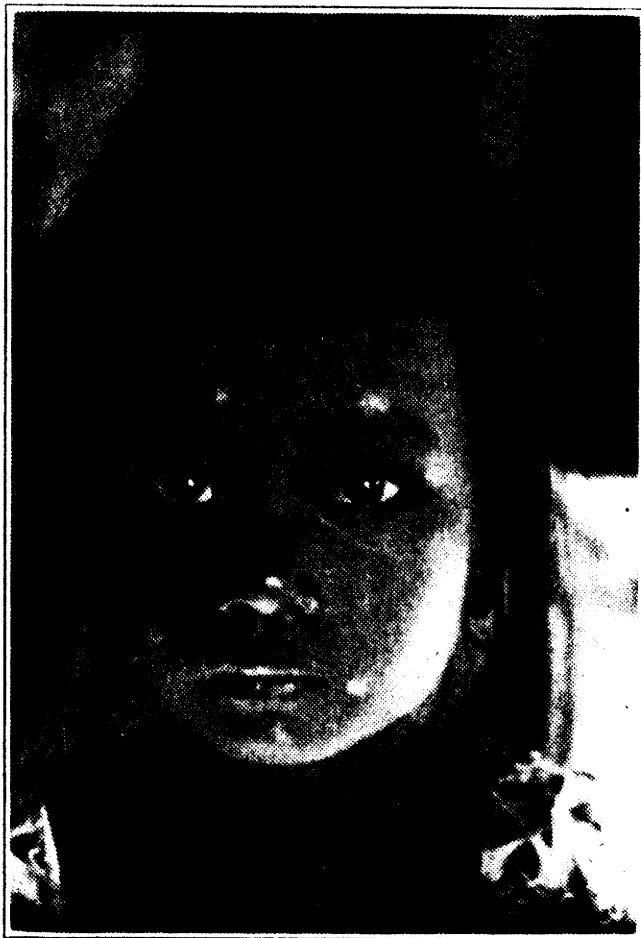


FIG. XI

To illustrate macular eruption of yaws. Note white patches, the coalescence of lesions.

finally disappearing and leaving a white patch of skin. In others, there develop, eventually, papular or frambetic lesions on the surface. These are not common, however, and in our opinion, they only accidentally develop on these macular spots. We have not observed papules of any kind in or around the patches, when they first appear. Later, however, just as in the case of frambetic lesions, papules may develop on these patches. With reference to the time of their appearance, we have not observed any definite time for their appearance, though most of them appear before the other eruptions. Still in not a few, they come out after the frambetic

secondary eruptions have disappeared or after an insufficient treatment of the disease with salvarsan.

Such a type lesions must not be confused with another macular lesion sometimes observed in the latter stages of the disease. This lesion is really a papular eruption: the papules are bright red, pin-head in size, are discrete, and form circular patches. The lesions advance peripherally, leaving the center clear but covered with fine white scales. These are probably tertiary lesions. I have only observed them in two private cases, both appearing after insufficient treatment.

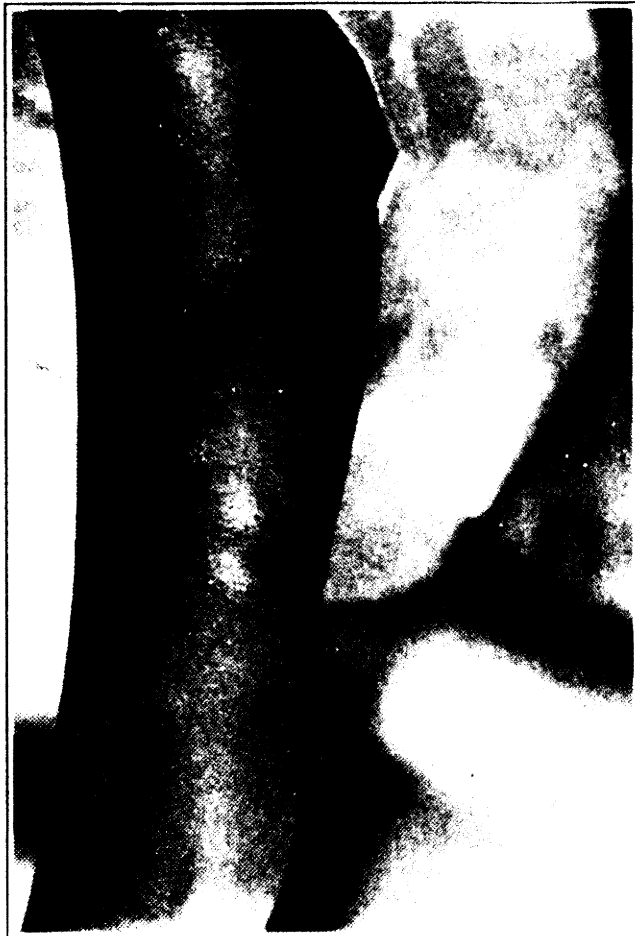


FIG. XII

Case 94. Aged 16. F. F. S. Bordadora. Diagnosis frambesia, primary, more than 3 months, healed with secondary eruptions after an injection by a physician. These secondaries appeared in 3 weeks' time. The present eruption appeared 2 weeks ago and small papules from pin-point to pin-head in size, follicular, grouped together on a depigmented patch of from a 10 to 50 cent. piece. These papules as well as the patches are covered by fine easily detached scales.

As may be seen from the foregoing table, they are not very rare, nor are they commonly observed. Inexperienced observers, therefore, might easily mistake them for some form of fungus infection, which is prevalent in this climate.

Another case was seen in this clinic, Case 165, which presented an erythematous, macular eruption all over the body. The case showed a typical primary eruption of the frambesiform type. This was soon followed by the erythematous eruption, rose-red in color, without any induration. The

eruptions simulated those of macular syphilides, that we were for a time in doubt as to the nature of the case. The eruptions, however, did not develop into the indurated copper-colored papules of syphilis and some of them began to fade in two weeks while the patient was under observation,

HISTOLOGY

The histological expression of the lesions is not dissimilar from that found in frambetic lesions (Fig. XV).

1. There is hyperkeratosis which is however, not as marked as that found in the nodular lesions. In places there is parakeratosis. Around the hair follicles and in the opening of the sweat pores, the horny cells are heaped.



FIG. XIII

Illustrating histology of macular lesions.

2. There is proliferation of the rete to about five times its normal depth; hence, the proliferation is not so marked as in the case of frambetic lesions. The pegs also proliferate in the same proportion.

3. The leucocytic infiltration in the epithelium is not so marked and is only found in places. There are no distinct military abscesses.

4. Some of the epithelial cells are edematous and the nuclei of some are separated from the protoplasm by a clear space.

5. There is an infiltration of polymorphonuclear leucocytes and small lymphocytes just below the pegs.

6. There is a marked edema of the papillary layer of the corium.

Closely related to this type of eruption is an eruption which we have termed, for want of a better name, *ichthyosis-like shins*. This is a diffuse, mild keratosis not dissimilar from the skin found in individuals suffering

from xeroderma, the difference being that the natural lines of the skin are more pronounced. The whole anterior portion of the tibia is affected, covered with firm furfurinaceous white or grayish-white scales (Fig. XIV). The scales are more adherent than the scales found in the preceding type of eruption. Indifferently scattered over the surface are seen sometimes small papules. This type of eruption is not common, being found three times in 196 cases, or in 1.53 per cent. It may be found in association with macular, papular, or nodular eruptions. We have only observed it in children.

The disease may end with the disappearance of the secondary eruptions. In some, however, the disease continues, and tertiary eruptions may be manifested soon after the secondaries have dried; or the tertiary lesions may appear years after the disease is thought to have been cured. This recrudescence is especially observed in keratosis of the palms and soles.



FIG. XIV

Case 102. Ichthyosis-like shins. Primary, 8 cases. Secondaria, 4 months, frambesiform.

THE TERTIARY LESIONS

It was soon observed in our cases that the intermingling of secondaries and tertiaries was frequent; often the bone lesions appeared with the secondary eruptions. In a few cases the primary lesion was still present when the tertiary eruptions made their appearance, and thus there were present primary, secondary, and tertiary eruptions.



FIG. XV

Case 209. Primary 2 years, still present. Secondaries, present crop, 2 months, still active bone lesions, one year.

TO SHOW THE RELATION BETWEEN THE APPEARANCE OF THE PRIMARY, SECONDARY, AND TERTIARY LESIONS

TABLE IV

Total cases.	Primary.	Secondary.	Tertiary.	Combined lesions.		
				Primary and secondary.	Secondary and tertiary.	Primary, secondary, and tertiary.
229	10	90	24	52	39	14
Percentages	4.63	39.30	10.48	22.70	17.03	6.11

In one of our cases, Case 47, when the soft palate had been paining the child for one week, the palate was found red and arched. This case, if left untreated, may form one of the cases called *Rhinopharyngitis Mutilans* by Leys.¹³

The tertiary lesions are distributed according to the following table:

TABLE V

Number of cases.	Periostitis.	Gumma.	Keratosis.	Periostitis and ulcer.	Periostitis and keratosis.
24 (x)	7	3	14	2	1
Percentages	29.16	12.50	41.66	8.33	4.16

¹³ Leys, "Rhinopharyngitis Mutilans," Jour. Trop. Med. and Hygiene 9:47.

The tertiary lesions described in the literature of the disease are bone lesions, gummata, and plantar lesions, or foot yaws.¹⁴

THE BONE LESIONS

These are chronic periostitis or nodules under the periosteum altering the size and shape of the bone in diverse forms but usually increasing its diameter. Long bones seem to be more prone to the lesions, and so the tarsals, metatarsals, radius, ulna, tibia, and fibula are often affected, while other bones are immune from it. They are painful, disabling, and incapacitating to the patient. Examples of this type of lesion is shown in Figure XV.

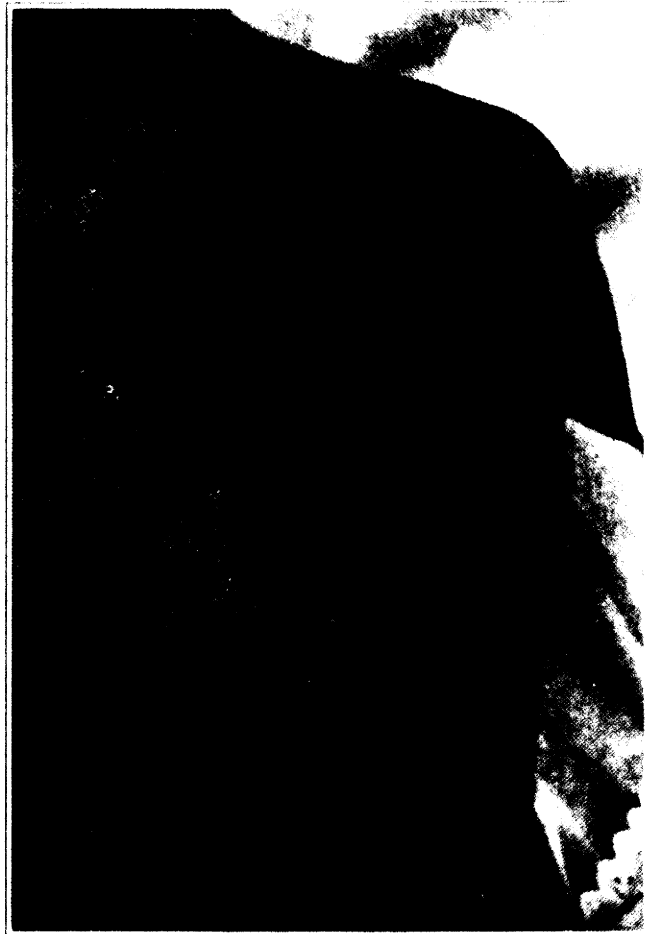


FIG. XVI

Case 76. Primary, 3 years. Healed in three months. Secondaries healed in four months. Tertiaries about elbows, external malleolus, and back.

GUMMATA

These lesions simulate the gummatous formation due to syphilis and may be difficult to differentiate them from the latter, as shown in Figures XVI and XVII. They are indolent ulcers covered with yellowish-brown scabs. They involve the subcutaneous tissue. The edges are clear-cut; if the scab is taken off, the fungus will be found granulating. Both of the cases shown here yielded to a single injection of salvarsan.

KERATOSIS

This is the commonest tertiary lesion found in yaws and the one least known. It is sometimes called *clarus*. Castellani⁴ called it by the name of "Peculiar Pitted Appearance of the Hands," Howard¹⁵ by *foot yaws*.

¹⁴ Howard. Jour. Trop. Med. and Hygiene 18:25

There is no question that this type of lesion follows yaws and that it is a tertiary manifestation of the disease. It may, however, appear during the latter part of the secondary eruptions, as observed by Castellani. On the other hand, it may appear years after all signs of the disease have disappeared, so that the patients have forgotten or do not see the relation between it and the yaws they had in childhood. In some of our cases a history of yaws was obtained occurring during childhood and these lesions did not appear till the patient reached adult age, or from 10 to 20 years after the infection. Examples of this type of lesion are shown in Figures



FIG. XVII

Case 116. Primary, three years. Tertiary lesions, 5 months. Right hand external aspect, flexor aspect, wrist, bend of elbows. Nodular type from split pea to lima bean in size covered with yellowish-brown scab.

XVIII and XIX. As may be seen from the foregoing table, these types of lesions are very common; but because our object was to treat the infectious cases, the cases of this type that presented themselves to the clinic were refused treatment.



FIG. XVIII

Case 217. 25 years. Primary at the age of 10.
Keratosiis, 8 years' duration.

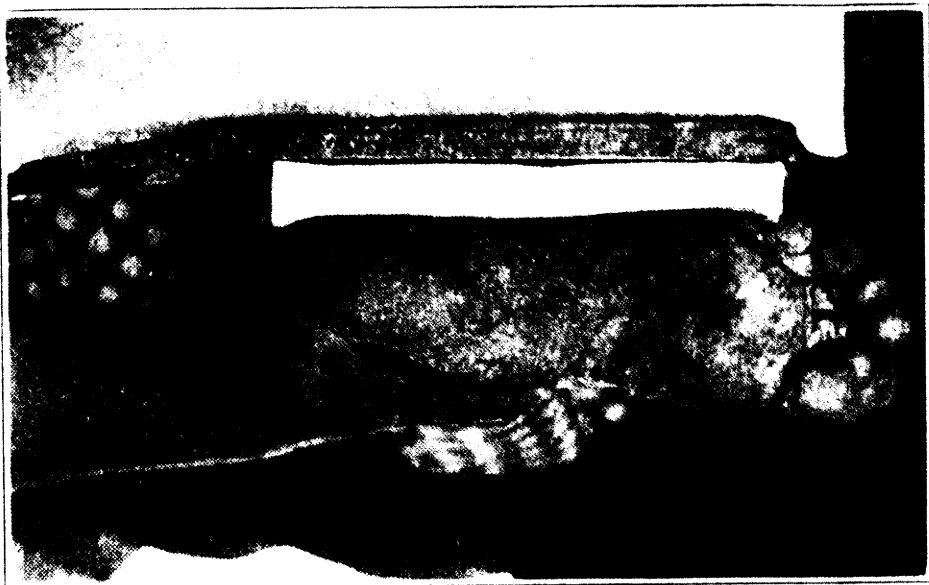


FIG. XIX

Case 213. Age 45. When washed when
young, about 12 years of age. Keratosiis, 10
years' duration. Palms and soles affected.

Case.	Age.	Sex.	Diagnosis.	Date of treatment.	Dose.	Result.			Second treatment				Observation.			Duration of disease.		
						Date.	Cured.	Better.	Not improved.	Date.	Dose.	Result.	Date.	Cured.	Better.		Not better.	Recurrence.
1	10	F	2	9/9	45	92/9	1						1			1 year.		
2	6	F	2	do.	30	do.	1						1			4 years.		
3	4	F	2	do.	30	9/21		1					1			11 months.		
4	5	F	2	do.	30	9/2	1						1			1 year.		
5	8	M	2-3	do.	30	9/10	1						1			1 year and 8 months.		
6	3	M	2	do.	30	9/29	1						1			1 year, 6 months. Periostritis.		
7	7	F	3	do.	30	9/21/9	1	(*)					1			1906, 15 months. Periostritis.		
8	60	F	3	do.	60	9/21/9	1						1			1 month, 1906.		
9	21	F	2	do.	60		1						1			1 year, 5 months. Keratosis.		
10	6	M	2	do.	30		1						1			May, 1920.		
11	4	M	2	do.	30		1						1			4 months.		
12			2	do.														
13	27	M	1-2	9/15	60	9/29	1						1					
14	7	F	2	do.	30	9/21		1					1					
15	11	F	3-2	do.	45	10/3		1					1			2 years. Bones better.		
16	14	M	3	do.	15	9/29		1					1			10 years.		
17	5	F	1-2	do.	30	9/21		1					1			10 months.		
18	11	F	2-3	do.	45	29		1				10/27				4 months. Primary.		
19	30	M	2-3	do.	60	3		1				3				20 years. Keratosis.		
20	18	F	2	do.	60	29		1				29				9 months.		
21	7	M	2	12	30	29		1				29				1 1/2 years.		
22	5	M	1-2	15	60	29		1				29				2 years.		
23	30	F	2-3	do.	30								1			2 years.		
24	4	F	2	do.	45	10/3		1					1			1 year.		
25	11	M	2	12	30	21							1					
26	17	M	2-3	do.	30	22						22				2 years.		
27	5	F	2	10	30	22		1					1			3 months.		
28	7	M	2	12	30	22		1					1					
29	8	M	2	15	45	29						21				1 1/2 years.		
30	9	F	2-3	15	30	29						29				2 years.		
31	3	M	1-2	17	30	3		1				3				3 months.		
32	13	F	1-2	17	45	3		1				3				3 years.		
33	7	F	1,2,3	17	30	3		1				3				4 months.		
34	39	F	2-3	17	60	6						6				3 years. K. B.		
35	30	F	2-3	19	60	3		1				3				7 months. B.		
36	14	F	1,2	19	45	10/3		1				3				9 months.		
37	12	F	1,2	19	45	3/29		1				3				3 months.		
38	7	F	1,2,3	19	45	3		1				3				1 year.		

Case.	Age.	Sex.	Diagnosis.	Date of treatment.	Dose.	Result.				Second treatment.			Observation.				Recurrence.	Duration of disease.
						Date.	Cured.	Better.	Not improved.	Date.	Dose.	Result.	Date.	Cured.	Better.	Not better.		
83	5	M	2	do.	20									1				Over 10 months.
84	4	M	2	10/10	30					27	20			1				6 months.
85	5	F	2	do.	30					11/7	30			1				6 months.
86	5	F	1	do.	076									1				2 years.
87	1	F	2	do.										1				1 month.
88	21	M	2	do.	06									1				6 months.
89	3	M	2	do.	06									1				2 1/2 years.
90	2	M	4	do.	20						20							6 months.
91	8	M	2	do.	25													11 months.
92	8	M	1	do.	35		1											4 months.
93	10	M	2	do.	45						45			1				3 years.
94	15	M	2	do.	60									1				Over 3 months.
95	25	M	2	do.	60									1				2 weeks.
96	2	F	1	do.	20	10/3	1							1				10 months.
97	2	F	2	do.	30									1				1 year.
98	2	M	1	do.	10									1				1 year.
99	7	M	2	do.	30									1				2 years.
100	8	F	2	do.	45									1				1 year.
101	3	F	2	do.	30					10/3	30			1				8 months.
102	4	F	2	do.	40									1				3 years.
103	6	F	2	do.	31									1				4 years.
104	6	M	2	do.	30									1				2 years.
105	6	F	2	do.	30									1				2 1/2 years.
106	12	M	2	do.	45					10/27	30			1				6 months.
107	5	F	2	do.	30	10/27		1			45			1				1 year.
108	7	M	2	do.	45									1				2 years.
109	7	M	2	do.	30									1				6 months.
110	7	M	2	do.	80									1				1 year.
111	11	M	2	do.	60									1				1 month.
112	8	M	3	do.	45									1				1 1/2 years.
113	12	F	2	do.	50									1				2 months.
114	7	F	2	do.	30					27	45			1				2 years.
115	15	F	2	do.	50									1				6 months.
116	10	F	3	do.	45									1				7 months.
117	10	F	3	do.	45									1				1 1/2 years.
118	18	M	2	do.	45									1				2 years.
119	7	M	2	do.	45									1				5 months.
120	1	F	1	10/17	45	10/7	1							1				1 month.
121	2	M	1	do.	15					7	15			1				

122	12	F	2	do.	45	1	45	1	5 years.
123	3	F	3	do.	30	1	30	1	1 year.
124	11	F	3	do.	35	1	35	1	8 months.
125	10	F	1,2	do.	40	1	40	1	2 months.
126	35	F	1,2	do.	60	1	31	1	Over 1 month.
127	1	M	2	10/7	20	1	20	1	Over 2 months.
128	22	F	1,2	do.	60	1	35	1	1 month.
129	10	M	1,2	do.	35	1	10/31	1	1 year and 2 months.
130	8	F	2,3	do.	45	1	31	1	1 year.
131	11	F	1,2	do.	40	1	11/3	1	7 months.
132	4	F	1,2	do.	30	1	10/3	1	4 months.
133	9	M	2	do.	40	1	10/31	1	6 months.
134	3	M	2	do.	25	1	7	1	1 1/2 years.
135	10	F	2,3	do.	45	1	30	1	3 years.
136	12	M	2	10/20	45	1	45	1	6 months.
137	7	F	2,3	do.	30	1	31	1	8 months.
138	4	M	2	do.	30	1	30	1	3 months.
139	9	M	2	do.	30	1	30	1	5 months.
140	5	F	1,2	do.	30	1	30	1	5 months.
141	12	M	1,2	do.	45	1	3	1	1 year.
142	12	M	1,2	do.	25	1	3	1	5 months.
143	11	F	2,3	do.	40	1	3	1	1 year.
144	12	F	1,2	do.	45	1	3	1	2 years.
145	24	M	1,2	do.	20	1	3	1	1 year.
146	45	F	1,2	do.	60	1	45	1	7 months.
147	13	M	1,2	do.	45	1	50	1	7 months.
148	12	F	1,2	20	27	1	27	1	7 months.
149	11	M	2	do.	45	1	45	1	1 year.
150	9	F	2,3	do.	45	1	45	1	6 months.
151	49	F	2,3	do.	75	1	3	1	1 year.
152	11	F	2	do.	30	1	30	1	6 months.
153	5	M	1	do.	25	1	3	1	3 years.
154	5	M	1,2	do.	30	1	30	1	4 years.
155	4	M	1,2	do.	30	1	30	1	2 years.
156	5	M	1,2	do.	45	1	45	1	6 months.
157	15	M	2	do.	45	1	45	1	Over 3 months.
158	1 yr. } 10 m. }	M	2	do.	20	1	20	1	1 year.
159	.....			See 93					
160	.....				45	1	45	1	
161	.....				45	1	45	1	
162	14	F	1	24	50	1	7	1	6 months.
163	1	F	1,2	do.	15	1	3	1	8 months.
164	11	M	3	do.	30	1	15	1	2 years and 5 months.
165	33	F	1,2	do.	60	1	60	1	5 months.
166	7	F	1	do.	30	1	11/7	1	
167	33	F	2	do.	60	1	7	1	
168	31	F	2	do.	60	1	60	1	2 years.

* Half size.

Case.	Age.	Sex.	Diagnosis.	Date of treatment.	Dose	Result.			Second treatment.			Observation.			Duration of disease.		
						Date.	Cured.	Better.	Not improved.	Date.	Dose.	Result.	Date.	Cured.		Better.	Not better.	Recurrence.
169	1½	M	1, 2	10/24	15						15			1			2 months.
170	4	M	1, 2		25									1			4 months.
171	2	F	12, 3		15									1			5 months.
172	2	M	1, 2		20									1			4 months.
173	6	M	1, 2		30									1			8 months.
174	3	M	1, 2		25									1			2½ years.
175	9	F	1		30									1			4 months.
176	7	M	2, 3		35	1								1			8 months.
177	5	M	1, 2		7									1			3 months.
178	30	F	1, 2, 3		7									1			2 years.
179	10	M			60									1			2 months.
180	17.	M	1, 2		30									1			4 years.
181	11	M	1, 2		20									1			3 months.
182	4	M	1, 2		40									1			2 years.
183	9	F	1, 2		25									1			4 years.
184	2	M	2		25									1			3 months.
185	10	M	2, 2		15									1			2 years.
186	5	M	1, 2		45									1			1 year.
187	5	M	1, 2		35									1			1 year and 4 months.
188	9	M	2, 3		27									1			8 months.
189	50	F	2, 3		45									1			5 months.
190					60									1			9 months.
191	12	M	1		45									1			1 year.
192	3	M	2		20									1			9 months.
193	3	M	1		20									1			2 months.
194	2	M	1, 2		20									1			3 months.
195	13	M	1, 2, 3		45									1			2 years.
196	2	M	1, 2		30									1			6 months.
197	1	M	2		15									1			1 year.
198	9	F	1		15									1			3 weeks.
199	5	F	2		25									1			
200	2	F	1, 2	10/27	25									1			1 year.
201	3	F	1, 2	do.	25									1			4 months.
202	25	F	1, 2	do.	60									1			7 years.
203	11	M	1, 2	do.	45									1			4 months.
204	9 m.	M	1, 2	do.	20									1			1 year and 4 months.
205	5	F	1, 2	do.	20									1			1 year.
206	8	M	2, 3	do.	55									1			1 year.
207	8	M	1, 2, 3	do.	30									1			1 year.

208	16	F	2, 3	do.	50	11/3	45	1	1	2 years.
209	12	F	1, 2, 3	do.	45				1	2 years.
210	13	F	2, 3	do.	45				1	Over 2 months.
211	15	M	1, 2	do.	15				1	5 months.
212	50	1 yr.	1, 2	10/27	60				1	5 years.
213	45	M	3	do.	60				1	33 years.
214	45	F	3	do.	30				1	1 year.
215	10	F	2	do.	45				1	3 years.
216	2	F	1, 2, 3	do.	25				1	4 months.
217	25	F	1, 2	do.	60				1	16 months.
218	40	M	3	do.	60				1	33 years.
219	3	F	1, 2	10/31	30				1	2 months.
220	31	M	3	do.	60				1	22 years.
221	12	M	3	do.	45				1	3 months.
222	4	M	2	do.	35				1	19 years.
223	17	F	3	do.	60	7	40			1 year.
224	29	F	3	do.	60					When child.
225	25	F	3	do.	60					3 years.
226	49	F	3	do.	60					4 months.
227	8 yr.	M	3	do.	40					3 years.
228	3	M	1, 2	11/3	15					1 year.
229	44	M	2, 3	do.	60					3 years.
230	8	F	3	do.	45					4 months.
231	8	F	1, 2	do.	45					3 years.
232	6	M	1, 2	11/10	45					1 year.
233	55	M	1, 2	do.	60					1 year.
234	11	M	1	do.	45					6 months.
235	11	M	2, 3	do.	45					4 months.
236	4	M	2	do.	30					2 months.
237	2	F	1, 2	do.	20					1 year.
238	10 m.	M	1, 2	do.	15					6 months.
239	11	F	2	do.	30					2 months.
240	24	F	2	do.	60					5 months.
241	2	F	1	do.	30					2 months.
242	27	F	2	do.	60					2 months.
243	8	M	2	do.	45					5 months.
244	10	M	3	do.	45					2 months.
245	8	M	3	do.	45					5 months.
246	9	M	3	do.	45					2 months.
247	8	M	3	do.	30					2 months.
248	20	F	3	do.	60					2 months.
249	35	F	3	do.	60					2 months.
250	10	F	2, 2	do.	45					2 months.
251	10	M	2, 2	do.	45					2 months.
252	14	F	2, 2	do.	20					2 months.
253	10	F	2, 2	do.	45					2 months.
254	2	M	1, 2	do.	20					2 months.
255	60	F	1, 2	do.	60					2 months.
256	44	M	3	do.	60					2 months.
257	35	M	3	do.	60					2 months.
258	32	M	2	do.	60					2 months.

Case.	Age.	Sex.	Diagnosis.	Date of treatment.	Dose.	Result.				Second treatment.				Observation.				Duration of disease.
						Date.	Cured.	Better.	Not improved.	Date.	Dose.	Result.	Date.	Cured.	Better.	Not better.	Recurrence.	
259	32	F	...	...	60	...	...	...	...	...	...	...	...	...	...	...	...	...
260	20	F	...	...	20	...	...	...	...	...	...	...	...	...	...	...	...	...
261	50	F	...	...	50	...	...	...	...	...	...	...	...	...	...	...	...	...
262	45	F	...	...	45	...	...	...	...	...	...	...	...	...	...	...	...	...
263	20	F	...	...	20	...	...	...	...	...	...	...	...	...	...	...	...	...
264	1	F	...	...	45	...	...	...	...	...	...	...	...	...	...	...	...	...
265	9	M	...	...	45	...	...	...	...	...	...	...	...	...	...	...	...	...
266	24	F	...	...	60	...	...	...	...	...	...	...	...	...	...	...	...	...
267	11	M	...	...	45	...	...	...	...	...	...	...	...	...	...	...	...	...
268	8	M	...	...	.45	...	...	...	...	...	...	...	...	...	...	...	...	...
269	7	M	...	11/10	.25	...	...	...	...	...	...	...	...	...	...	...	...	...
270	13	M	...	10/10	.45	...	...	...	...	...	...	...	...	...	...	...	...	...
271	45	F	3	10/20	.60	...	...	...	...	...	...	...	...	...	...	...	...	...
272	8	M	...	do.	.30	...	...	...	...	...	...	...	...	...	...	...	...	...
273	28	F	...	do.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
274	22	M	...	do.	.60	...	...	...	...	...	...	...	...	...	...	...	...	...
275	11	M	...	10/31	.45	...	...	...	...	...	...	...	...	...	...	...	...	...
276	13	M	...	do.	.45	...	...	...	...	...	...	...	...	...	...	...	...	...
Number of cases.																		
Clinically cured 1 1/2 months.																		
Better.																		
Not better or recurred.																		
259																		
94.52																		
7																		
2.55																		
8																		
2.91																		

275... Percentages

GENERAL STATISTICS

[Unless otherwise stated these statistics are for the month of February, 1922.]

ESTIMATED POPULATION OF THE CITY OF MANILA FOR 1922

BY NATIONALITIES.

Nationality.	Population
Americans.....	8,134
Filipinos.....	271,480
Spaniards.....	1,955
Other Europeans.....	1,126
Chinese.....	17,856
All others.....	2,186
Total.....	297,687

BY DISTRICTS.

Health districts.	Population
No. 1, Intramuros.....	86,602
No. 2, Meisic.....	101,965
No. 4, Sampaloc.....	48,315
No. 5, Tondo.....	78,929
No. 6, Paco.....	81,876
Total.....	297,687

METEOROLOGICAL REPORT FOR MANILA CENTRAL OBSERVATORY DEDUCED FROM HOURLY OBSERVATIONS, FEBRUARY, 1922

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Date.	Pressure ¹ mean.	Temperature.					Relative humidity.					
		In shade. ²			Underground.		Mean.	Daily mean maximum.	Day.	Daily mean minimum.	Day.	
		Absolute maximum.	Day.	Absolute minimum.	Day.	0.50 m.						
						8 a. m. mean.						2 p. m. mean.
		Mean.	Absolute maximum.	Day.	Absolute minimum.	Day.	°C.	°C.	°C.	Per cent.	Per cent.	Per cent.
1-10.....	mm. 761.39	25.0	33.8	4	17.1	9	26.9	27.4	2	68.8	8	
11-20.....	59.90	25.3	33.2	12,14	18.3	14	27.2	27.6	17	68.9	14	
21-28.....	59.68	25.5	33.9	22	18.6	24	27.4	27.9	28	65.7	21	
						</						

¹ Corrected for instrumental error and for temperature and reduced to sea level. Correction to standard gravity. — 1.72 mm.

² These values are taken from instrument mounted in the Observatory Park, 1.5 meters above ground.

BIRTHS REPORTED IN THE CITY OF MANILA

[Stillbirths not included.]

Nationality.	Male.	Female.	Total.	Annual birth rate per 1,000.
Americans.....	3	5	8	33.80
Filipinos.....	515	476	991	47.63
Spaniards.....	2	1	3	20.02
Other Europeans.....	1	1	2	23.17
Chinese.....	18	14	32	23.33
All others.....	5	4	9	53.71
Total.....	544	501	1,045	46.79

BIRTHS, BY DISTRICTS

Health districts.	Legitimates.			Illegitimates.			Grand total.	Annual birth rate per 1,000.
	Male.	Female.	Total.	Male.	Female.	Total.		
No. 1, Intramuros.....	67	87	154	3	3	6	160	57.02
No. 2, Melsic.....	88	78	166	5	7	12	178	52.77
No. 4, Sampaloc.....	106	76	182	8	6	14	196	52.92
No. 5, Tondo.....	191	169	360	10	11	21	381	62.97
No. 6, Paco.....	63	58	121	3	6	9	130	53.20
Total.....	515	468	983	29	33	62	1,045	46.79

Number of births attended by physician, living, 264; stillbirths, 22.

Number of births attended by midwife, living, 119; stillbirths, 3.

Number of births attended by family, living, 662; stillbirths, 23.

NUMBER OF DEATHS AND DEATH RATE PER 1,000 AMONG RESIDENTS, IN THE CITY OF MANILA, BY NATIONALITIES

[Stillbirths not included.]

Nationality.	Male.	Female.	Total.	Annual death rate per 1,000.
Americans.....	1	1	2	8.32
Filipinos.....	308	236	594	28.55
Spaniards.....	4	.....	4	26.69
Other Europeans.....	.....	.....	.....	.....
Chinese.....	24	4	28	20.45
All others.....	2	4	6	35.80
Total and average.....	339	295	634	27.78

TOTAL DEATHS BY SOCIAL CONDITION, INCLUDING TRANSIENTS

Social condition.	Male.	Female.
Married.....	100	94
Divorced.....	.....	.....
Widowed.....	29	56
Single.....	259	201
Conditions not stated.....	4	.....
Total.....	392	351
Grand total.....	743	.....

Stillbirths..... 48

Number of deaths with medical attendance..... 369

Number of deaths without medical attendance..... 374

DEATHS BY AGES IN THE CITY OF MANILA

[Stillbirths not included.]

Ages.	Residents.		Transients.		Total.
	Male.	Female.	Male.	Female.	
Under 80 days.....	38	31	1	2	72
80 days to under 1 year.....	73	64	15	12	164
1 year to under 2 years.....	34	23	3	6	66
2 years to 4 years.....	20	15	2	5	42
5 years to 9 years.....	13	6	1	3	23
10 years to 14 years.....	8	6	1	1	11
15 years to 19 years.....	11	17	2	1	31
20 years to 29 years.....	36	26	9	7	78
30 years to 39 years.....	19	27	2	11	59
40 years to 49 years.....	27	20	4	3	54
50 years to 59 years.....	26	14	4	2	46
60 years to 69 years.....	12	16	3	1	32
70 years to 79 years.....	18	12	2	.....	32
80 years to 89 years.....	5	10	.....	1	16
90 years to 99 years.....	4	8	1	.....	13
100 years and over.....	.....	.....	.....	.....	.....
Age not stated.....	.....	.....	.....	.....	.....
Total.....	839	295	50	55	789

Four (4) filipinos: 3 males and 1 female; 1 of about 45 to 50 years; 1 of 87 years and 2 of unknown age, permanent residence unknown, not included in this table.

DEATHS AND DEATH RATE PER 1,000, BY DISTRICTS, INCLUDING TRANSIENTS

[Stillbirths not included.]

Health districts.	Deaths.	Annual death rate per 1,000.
No. 1, Intramuros.....	119	42.41
No. 2, Meisic.....	114	14.58
No. 4, Sampaloc.....	125	33.75
No. 5, Tondo.....	322	53.22
No. 6, Paco.....	63	25.78
Total.....	743	32.56

NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG TRANSIENTS IN THE CITY OF MANILA

[Stillbirths not included.]

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
I. General diseases.													
1. Typhoid fever.....			3								1		4
4. Malaria.....			1										1
6. Measles.....			1										1
8. Whooping cough.....			1										1
9. Diphtheria and croup.....				1									1
12. Asiatic cholera.....				1									1
14. Dysentery.....				1									1
24. Tetanus.....				1									1
27a. Beriberi infantile.....			5	3							1		9
28. Tuberculosis of the lungs.....			3	2						2			5
30. Tuberculous meningitis.....			1	2									3
45. Cancer and other malignant tumors of other organs or of organs not specified.....			1	1									2
46. Other tumors (tumors of the female genital organs excepted).....				1									1
51. Exophthalmic goitre.....				1									1
II. Diseases of the nervous system and of the organs of special sense.													
61. Simple meningitis: (1) Simple meningitis..... (2) Cerebro-spinal meningitis (undefined).....			1	1									2
63. Other diseases of the spinal cord.....				1									1
64. Cerebral hemorrhage, apoplexy.....										1			1
68. Other forms of mental alienation.....			1										1
III. Diseases of the circulatory system.													
79. Organic diseases of the heart.....				2			1						3
80. Angina pectoris.....			1										1
IV. Diseases of the respiratory system.													
88. Diseases of the thyroid body.....				1									1
89. Acute bronchitis.....			7	4									11
90. Chronic bronchitis.....				2									2

IV. Diseases of the respiratory system

91. Broncho-pneumonia.....	5	8							13
92. Pneumonia.....	2								2
93. Pleurisy.....	1								1
98. Other diseases of the respiratory system (tuberculosis excepted).....	1								1

V. Diseases of the digestive system.

103. Other diseases of the stomach (cancer excepted).....		1							1
104. Diarrhoea and enteritis (under 2 years).....	2								2
106. Appendicitis and typhilitis.....		2							2
116. Other diseases of the liver.....							1		1
117. Simple peritonitis (nonpuerperal).....		2							2

VI. Nonvenereal diseases of the genito-urinary system and annexa.

119. Acute nephritis.....		3							4
120. Bright's disease.....	2	1							3

VII. The puerperal state.

135. Puerperal hemorrhage.....		3							3
136. Other accidents of labor.....		1							1
138. Puerperal albuminuria and convulsions.....		1							1

XI. Diseases of early infancy.

151. Congenital debility, icterus and sclerema:									
(1) Premature birth (not stillborn).....	1	1							1
(2) Congenital debility.....		2							4

XII. Old age.

154. Senility.....		1							1
--------------------	--	---	--	--	--	--	--	--	---

XIII. Affections caused by external causes.

158. Suicide by drowning.....		1							1
167. Burns (conflagration excepted).....							1		1
172. Traumatism by fall.....		1							1
185. Fractures (cause not specified).....			1						1

Total.....	1	43	52		1		4	2	2	105
Grand total.....	1		95			1		6	2	105

INFANT MORTALITY

Causes of death.	Under 24 hours.	24 hours to under 36 hours.	36 hours to under 48 hours.	48 hours to under 14 days.	14 days to under 1 year.	Total.
Abcess, acute multiple face and leg left					1	1
Athrepsia congenital					1	1
Athrepsia malnutrition					4	4
Beriberi, acute					1	1
Beriberi infantile				9	76	85
Beriberi infantile (bronchitis)					1	1
Beriberi infantile (intestinal deformity)					1	1
Bronchitis, acute					86	86
Bronchitis, chronic					5	5
Broncho-pneumonia					10	10
Cholera infantum (anæmia acute second- ary to bleeding)					1	1
Congenital debility	18	8		17	10	48
Congenital weakness (miscarriage)	1					1
Diarrhoea and enteritis					1	1
Dyspepsia, acute					1	1
Dyspepsia and meningitis					1	1
Eczema generalized, broncho-pneumonia nephritis					1	1
Erysipelas					1	1
Gastro-enteritis					1	1
Gastro-enteritis, acute					1	1
Gastro-enteritis, complicated with me- ningitis					1	1
General debility due to premature labor	1					1
Grippe					1	1
Icterus catarrhal					1	1
Malformation, and syndactyle	1					1
Malnutrition					2	2
Malnutrition due to faulty bottle feeding (terminal marasmatic convulsions)					1	1
Marasmus (malnutrition)					9	9
Meningitis, acute					1	1
Meningitis, tuberculous					2	2
Nephritis, acute					3	3
Nephritis parenchymatous					1	1
Pneumonia, acute					1	1
Pneumonia lobar and incomplete devel- opment				1		1
Premature birth	1					1
Septicaemia (impetigo)					1	1
Septicaemia (generalized due to eczema)					1	1
Tetanus umbilical				3		3
Uræmia for nephritis acute					1	1
Whooping cough					1	1
Total	22	8		30	181	236

ANTI-PLAGUE CAMPAIGN IN THE CITY OF MANILA

Number of spring traps set	15,553
Number of rats caught with spring traps	1,973
Number of wire traps set	193
Number of rats caught by wire traps	0
Number and kind of baits (coconuts)	15,746
Number of poison portions placed	14,905
Number of rats found poisoned	176
Number of rats killed by clubs and other weapons	442
Number of rats found dead from other causes	343
Total number of rats otherwise caught, found dead or killed	2,934
Total number of rats sent to laboratory for examination	2,934
Total number of rats found positive for plague	0

**TYPHOID AND PARATYPHOID FEVER REPORTED DURING THE MONTH OF
FEBRUARY 1922, CITY OF MANILA, RESIDENTS ONLY**

CASES.

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Living:											
Male.....	16	0	22	1	17	3	9	3	0	1	72
Female.....	2	1	8	1	21	4	7	3	1	0	48
Dead:											
Male.....	0	0	0	0	1	2	1	1	2	1	8
Female.....	1	0	2	2	3	1	0	0	0	0	9
Total:											
Male.....	16	0	22	1	18	5	10	4	2	2	80
Female.....	3	1	10	3	24	5	7	3	1	0	57
Grand total..	19	1	32	4	42	10	17	7	3	2	137

DEATHS.

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Male	3	0	4	0	6	2	2	0	2	1	20
Female	2	0	2	3	5	4	2	0	0	0	18
Total.....	5	0	6	3	11	6	4	0	2	1	38

Total cases reported within the month.....	157
Provincial cases reported in the city of Manila.....	20
Foreign cases reported in the city of Manila.....	0
City cases reported (residents only).....	137
Total deaths reported within the month.....	42
Deaths among provincial cases reported in Manila.....	4
Deaths among foreign cases reported in Manila.....	0
Deaths among city cases.....	38
Total confirmed as typhoid fever.....	145
Widal reaction.....	88
Blood culture.....	0
Autopsy.....	0
Feces.....	7
Clinically positive.....	50
Cases confirmed as paratyphoid fever.....	10
Cases not confirmed.....	2
Paratyphoid fever.....	Provinces: 2 cases, 0 death. City: 8 cases, 1 death. ¹
Typhoid carrier: 18 living.	

¹ All are included in the above table.

DYSENTERIES REPORTED DURING THE MONTH OF FEBRUARY, 1922, CITY OF MANILA, RESIDENTS ONLY

CASES.

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Living:											
Male	1	0	4	0	0	0	2	1	3	0	11
Female	1	0	0	0	2	2	1	1	1	0	8
Dead:											
Male	0	0	0	0	0	1	0	0	0	0	1
Female	0	0	0	0	1	0	0	0	0	0	1
Total:											
Male	1	0	4	0	0	1	2	1	3	0	12
Female	1	0	0	0	3	2	1	1	1	0	9
Grand total..	2	0	4	0	3	3	3	2	4	0	21

DEATHS.

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Male	0	0	0	0	0	1	0	0	1	0	2
Female.....	0	0	0	0	1	1	0	0	0	0	2
Total.....	0	0	0	0	1	2	0	0	1	0	4

Total cases reported within the month.....	23
Provincial cases reported in the city of Manila.....	2
City cases reported (residents only).....	21
Total deaths reported within the month.....	5
Deaths among provincial cases reported in the city of Manila.....	1
Deaths among city cases.....	4
Reported as:	
Amoebic dysentery.....	2
Acute dysentery.....	2
Bacillary dysentery.....	0
Chronic dysentery.....	2
Dysentery	17
Extraneously reported as dysentery.....	0
Total	23

CONFIRMED CHOLERA CASES REPORTED DURING THE MONTH OF FEBRUARY, 1922, CITY OF MANILA, RESIDENTS ONLY

CASES.

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Living:											
Male.....	1	0	1	0	0	0	1	0	0	0	3
Female.....	0	0	0	0	1	0	0	0	0	0	1
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	2	0	1	0	0	0	0	3
Total:											
Male.....	1	0	1	0	0	0	1	0	0	0	3
Female.....	0	0	0	2	1	1	0	0	0	0	4
Grand total..	1	0	1	2	1	1	1	0	0	0	7

DEATHS.

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Male.....	1	0	0	0	0	0	0	0	0	0	1
Female.....	0	0	0	2	0	1	0	0	0	0	3
Total.....	1	0	0	2	0	1	0	0	0	0	4

Total cases reported within the month.....	10
Provincial cases reported in the city of Manila (not confirmed).....	1
Foreign cases reported in the city of Manila.....	0
City cases (residents only).....	9
City cases confirmed as cholera.....	7
City cases not confirmed (found negative).....	2
Total deaths reported within the month.....	4
Deaths among provincial cases reported in the city of Manila.....	0
Deaths among foreign cases reported in Manila.....	0
Deaths among city cases.....	4
City deaths confirmed as cholera.....	4
City deaths not confirmed.....	0
Cholera carriers: 18 living and 2 dead bodies.	

**DIPHTHERIA REPORTED IN THE CITY OF MANILA, DURING THE MONTH OF
FEBRUARY, 1922, RESIDENTS ONLY
CASES.**

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	
Living:											
Male.....	1	0	1	0	0	0	2	0	0	0	4
Female.....	2	0	0	0	1	0	2	0	1	0	6
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total:											
Male.....	1	0	1	0	0	0	2	0	0	0	4
Female.....	2	0	0	0	1	0	2	0	1	0	6
Grand total..	3	0	1	0	1	0	4	0	1	0	10

DEATHS.

Sex.	Health districts.										
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		Total.
	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	
Male.....	0	0	0	0	0	0	2	0	0	0	2
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total.....	0	0	0	0	0	0	2	0	0	0	2

Total cases reported within the month.....	11
Provincial cases reported in Manila.....	1
City cases reported (residents only).....	10
City cases confirmed as diphtheria.....	7
City cases not confirmed.....	3
Total deaths reported within the month.....	3
City deaths confirmed as diphtheria.....	2
City deaths not confirmed.....	0
Deaths among provincial cases reported in Manila.....	1
Diphtheria carrier: 1 living.	

**OTHER COMMUNICABLE DISEASES REPORTED IN THE CITY OF MANILA, DURING
THE MONTH OF FEBRUARY, 1922, RESIDENTS ONLY**

Diseases.	Cases.	Deaths.
Malaria.....	7	1
Varicella.....	0	0
Varicella.....	24	0
Smallpox.....	0	0
Measles.....	9	2
Whooping cough.....	0	0
Influenza.....	15	5
Beriberi.....	94	93
Pulmonary tuberculosis.....	144	115
Tuberculosis of other organs.....	19	20

**PROVINCIAL CASES AND DEATHS REPORTED IN THE CITY OF MANILA NOT
INCLUDED IN THE ABOVE TABLE**

Diseases	Cases.	Deaths.
Malaria.....	2	1
Varicella.....	2	0
Whooping cough.....	1	1
Influenza.....	1	0
Beriberi.....	1	1
Pulmonary tuberculosis.....	9	1

REPORT ON THE DISTRIBUTION OF ASSORTED SERA VACCINES

Sera and vaccine.	On hand February 1, 1922.	Received during the month.	Total to be accounted for.	Distribut- ed during the month.	Remain- ing at the end of the month.
Anti-diphtheric serum (units).....	447,000	.....	447,000	167,000	280,000
Anti-dysenteric serum (ampoules).....	18	20	88	20	18
Anti-tetanic serum (units).....	.....	200,000	200,000	200,000	.....
Cholera vaccine (c.c.).....	9,250	94,880	104,130	95,580	8,600
Dried vaccine virus (units).....	.....	11,500	11,500	10,500	1,000
Fresh vaccine virus (units).....	88,300	200,000	288,300	231,400	56,900
Gonococcus vaccine (ampoules).....	.....	200	200	200	.....
Mixed cholera and typhoid (c.c.).....	.....	3,600	3,600	3,300	300
Typhoid and paratyphoid vaccine (am- poules).....	1,750	6,850	8,600	8,020	580

**SMALLPOX VACCINATIONS IN THE CITY OF MANILA, DURING THE MONTH OF
FEBRUARY, 1922**

Health districts.	Total vaccina- tions.	Total inspec- tions.	Positive.	Negative.
No. 1, Intramuros.....	1,047	208	184	24
No. 2, Melsic.....	8,062	762	512	250
No. 4, Sampaloc.....	3,258	244	226	18
No. 5, Tondo.....	2,160	427	371	56
No. 6, Paco.....	8,164	195	164	31
Total.....	22,681	1,836	1,457	379

**CONSOLIDATED CHOLERA VACCINATIONS FOR THE MONTH OF FEBRUARY IN
THE CITY OF MANILA**

Districts.	Number of persons vaccinated.								Total.
	Males.				Females.				
	Double injections.		Single injections.		Double injections.		Single injections.		
	A.	C.	A.	C.	A.	C.	A.	C.	
No. 1, Intramuros.....	1	4	1,866	553	8	.....	1,284	584	4,800
No. 2, Meisic.....	.....	.....	8,761	2,200	.....	.....	1,420	1,839	8,720
No. 4, Sampaloc.....	.....	.....	748	722	.....	.....	508	831	2,804
No. 5, Tondo.....	.....	.....	2,063	2,131	.....	.....	1,901	2,075	8,170
No. 6, Paco.....	.....	.....	809	1,015	.....	.....	453	523	2,805
Total.....	1	4	9,247	6,621	8	.....	5,561	5,357	26,799

NOTE.—A, means adults; C, children.

**CONSOLIDATED TYPHOID VACCINATIONS FOR THE MONTH OF FEBRUARY IN
THE CITY OF MANILA**

Districts.	Number of persons vaccinated.				Total.
	Males.		Females.		
	Adults.	Children.	Adults.	Children.	
No. 1, Intramuros.....	611	95	293	68	1,067
No. 2, Meisic.....	160	30	125	27	342
No. 4, Sampaloc.....	79	60	118	63	320
No. 5, Tondo.....	61	46	154	65	326
No. 6, Paco.....	267	51	159	35	511
Total.....	1,178	281	849	258	2,566

TOTAL VACCINATIONS OF SMALLPOX IN THE PROVINCES FOR THE YEAR 1922 :

Provinces.	Vaccinations.	Inspections.	Positive.	Negative.
Abra.....	1,853	1,713	1,112	601
Albay.....	4,439	3,068	2,026	1,042
Antique.....	2,898	2,440	1,691	749
Bataan.....	2,010	1,946	1,537	409
Batangas.....	2,066	646	549	97
Bohol.....	9,164	7,259	4,873	2,386
Bulacan.....	6,050	3,752	2,312	940
Cagayan.....	1,035	388	200	188
Camarines Sur.....	5,777	3,873	2,788	1,085
Capiz.....	4,478	4,232	3,570	862
Catanduanes.....	12,625	3,986	2,624	1,312
Cavite.....	1,979	1,785	1,220	565
Ilocos Norte.....	3,962	3,820	1,472	1,848
Ilocos Sur.....	3,838	3,175	1,945	1,230
Iloilo.....	16,374	9,876	7,387	2,439
Isabela.....	986	698	233	465
Laguna.....	1,198	923	676	247
La Union.....	2,051	1,215	478	737
Leyte.....	9,338	4,848	3,515	1,333
Marinduque.....	1,540	1,238	829	459
Masbate.....	699	.....	.....	.....
Mindoro.....	3,323	1,978	1,082	896
Mountain Province.....	1,907	799	505	294
Nueva Ecija.....	34,075	24,191	14,345	9,846
Nueva Vizcaya.....	640	613	490	123
Occidental Negros.....	2,800	2,231	1,545	686
Oriental Negros.....	8	.....	.....	.....
Palawan.....	397	397	193	204
Pampanga.....	3,469	1,905	1,431	474
Pangasinan.....	37,042	32,135	16,171	15,964
Rizal.....	4,068	2,873	1,933	940
Samar.....	1,622	1,546	797	749
Tarlac.....	1,819	1,734	1,238	496
Tayabas.....	2,331	2,007	1,436	571
Zambales.....	1,034	944	822	122
Zamboanga.....	258	131	49	82
Total.....	189,648	133,865	83,574	50,291

1 Compilation of reports received from January 1st to date. Other provinces not yet received.

**CONSOLIDATED CHOLERA VACCINATIONS REPORTED IN THE PROVINCES SINCE
JANUARY, 1922 ¹**

Provinces.	Number of vaccinations.		
	Adult.	Children.	Total.
Abra.....	190	813	1,003
Albay.....	6,030	2,863	8,893
Antique.....	540	574	1,114
Bataan.....	193	123	316
Bohol.....	369	707	1,076
Cagayan.....	3,037	1,738	4,775
Capiz.....	714	990	1,704
Cavite.....	4,487	2,567	7,054
Cebu.....	1,649	1,190	2,839
Ilocos Norte.....	403	666	1,069
Ilocos Sur.....	1,548	719	2,267
Iloilo.....	389	425	814
Laguna.....	2,621	3,928	6,549
La Union.....	2,785	2,001	4,786
Leyte.....	747	414	1,161
Marinduque.....	145	29	174
Mindoro.....	732	377	1,109
Nueva Ecija.....	835	828	1,663
Nueva Vizcaya.....	355	170	525
Oriental Negros.....	1,805	1,439	3,244
Pampanga.....	2,067	1,938	4,005
Pangasinan.....	2,617	2,143	4,760
Rizal.....	11,471	6,963	18,434
Sorsogon.....	1,109	556	1,665
Tarlac.....	43	9	52
Tayabas.....	974	123	1,097
Zambales.....	1,880	1,808	3,188
Zamboanga.....	23	77	100
Total.....	49,758	35,678	85,436

¹ Compilation of reports received. Report not complete.

**CONSOLIDATED TYPHOID VACCINATIONS REPORTED IN THE PROVINCES SINCE
JANUARY, 1922 ¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Cavite.....	6	2	8
Ilocos Sur.....	622	764	1,386
Laguna.....	1,380	174	1,554
La Union.....	6	.....	6
Total.....	2,014	940	2,954

¹ Compilation of reports received. Report not complete.

SMALLPOX REPORTED FROM THE PROVINCES FOR THE MONTH OF FEBRUARY, 1922

Provinces and towns.	Cases.	Deaths.
Oriental Negros:		
Siaton.....	62	6
Nueva Ecija:		
Quezon.....	1	1
Total.....	63	7

CHOLERA REPORTED FROM THE PROVINCES FOR THE MONTH OF FEBRUARY, 1922

Provinces and towns.	Cases.	Deaths.
Bulacan:		
Hagonoy.....	1	1
Laguna:		
Calsuan.....	1	1
La Union:		
Aringay.....	1	1
Rizal:		
Passay.....	1	.....
Total.....	4	3

THE GOVERNMENT OF THE PHILIPPINE ISLANDS
DEPARTMENT OF PUBLIC INSTRUCTION

MONTHLY BULLETIN
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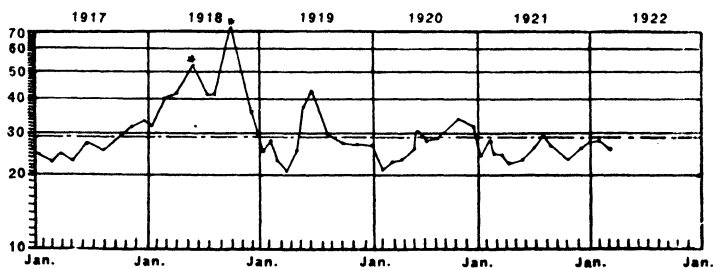
The keystone of a nation's progress is sanitation and education.



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1. Yaws in Parañaque (continued from the February number).
2. Vital Statistics for March.

ANNUAL DEATH RATES BY MONTH, CITY OF MANILA



* Influenza.

----- Average death rate for the last five years.

MANILA
BUREAU OF PRINTING
1922

COMMITTEE ON THE MONTHLY BULLETIN, P. H. S.

S. V. DEL ROSARIO, *Assistant Director of Health, Chairman*
J. P. BANTUG, *Senior Medical Inspector, P. H. S., Member*
L. LOPEZ RIZAL, *Senior Medical Inspector, P. H. S., Member*
M. V. ARGUELLES, *Senior Surgeon, P. H. S., Secretary*

LACTANCIA MATERNA, LA MEJOR PARA NIÑOS RECIEN NACIDOS

1. La leche materna es el alimento natural del recién nacido, porque contiene todos los elementos necesarios para el desarrollo y crecimiento del niño.
2. La leche materna contiene la necesaria cantidad de proteidos, grasas, carbo-hidratos y sales minerales indispensables para la digestión apropiada durante el período de la infancia.
3. Bajo circunstancias normales, la leche materna es prácticamente estéril, y se encuentra enteramente libre de bacterias patógenas al tiempo de ingerirse por el niño directamente del pecho de la madre.
4. La leche materna es la más barata, siempre fresca, y suministrada a una temperatura apropiada.
5. Los niños alimentados con alimentos artificiales pueden estar gordos y rollizos, pero resultan débiles para resistir a las enfermedades.
6. Los trastornos gastro-intestinales son más comunes y más graves entre niños alimentados artificialmente.
7. El acto de mamar el niño contribuye a la involución normal del útero de la madre.
8. Cualquiera otra leche, aun cuando contenga los mismos componentes de la leche humana, éstos existen, sin embargo, en proporciones muy diferentes de las de aquella. Si la leche (no humana) se diluye, la proporción de los constituyentes llega a hacerla apropiada con respecto a algunos de ellos, pero el resto de dichos constituyentes queda grandemente reducido con lo cual el valor alimenticio de la leche baja, como es natural.
9. La leche en lata u otros alimentos artificiales pueden no contener los elementos necesarios para un desarrollo normal.
10. La ignorancia de mucha gente en el manejo y preparación de los biberones, hace muy peligrosa para la salud del niño la lactancia artificial.

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No. 3

REPORT OF THE COMMISSION FOR THE SUPPRESSION
OF YAWS IN PARANAQUE¹

[Continued from February number]

By Dr. PERFECTO GUTIERREZ

Officer in charge of venereal clinics, Philippine Health Service

THE COURSE OF THE DISEASE

The disease has been arbitrarily divided into three stages: the primary, the secondary, and the tertiary stages. Up to the present time there has not been reported an undoubted quarternary stage.

THE PRIMARY LESION

The primary lesion may develop upon any ulceration or abrasion of the skin, and this is usually extragenital. It is manifested, after an incubation period of from two to four weeks, by a papule. This papule becomes moist and, after one week, is covered by a yellow crust. If the crust is then removed, an ulcer will be found with granulating fundus and clean-cut edges. The primary lesion in our cases is illustrated in Figure I.

The primary lesion may heal before the secondary eruptions appear, but as a rule it is still present when the secondaries are observed. On the other hand, the primary sore may last for several years.

THE SECONDARY LESIONS

According to the generally accepted view, the secondary eruptions are two forms, the papules and the nodules. Our observations however lead us to believe that there are more than these two types of secondary eruptions found in the secondary stage of the disease.

The secondary eruptions are preceded by malaise, fever, pain in the muscles, joints and bones.

¹ Personnel of the Commission: Dr. P. GUTIERREZ, *Chairman*; Dr. L. FERNANDEZ, *Assistant*; Miss B. KATANJAL R. N., *Nurse*.

Dr. J. GUIDOTE, attending the clinic on clinic days, helped us give the injections. Drs. SELLARDS and GOOD PARTURE, given permission to study the Wassermann reaction of these cases helped us give the injections.

THE NODULAR LESIONS

The nodular form of eruption is the lesion most commonly observed in the disease (of the 275 cases treated, in 4 the age was not recorded and of the 45 adult cases 14 were in the tertiary non infectious stage and were not included in our table). It was observed in the majority of our cases, in accordance with the accepted view of the disease. This type of eruption is so well known and has been so well described that little can be added to its description, see Figure II. These eruptions may begin as small papules, *vide infra*, or they may appear as such from the beginning. When fully developed, they vary in size from the head of a match to that of a quarter or larger Fig. VI. They are raised from the surface. The surface of the lesions are covered with a yellow scab. If the scab is taken off the surface will be found raw, with minute bleeding points. These lesions may remain of the same size for a long time after which the secretion dries up and the lesion finally disappear in from 3 months to one year. These lesions occur in crops, each crop lasting as indicated above, and is succeeded by another crop, and this may be repeated three or four times.

When these lesions are found on moist surfaces such as the genitals, anus, etc., the eruption then becomes a moist papule which is not unlike the moist papule of syphilis Fig. VII.

PALMAR AND PLANTAR LESIONS

Palmar and plantar lesions are also observed rather frequently. As illustrated in Figures VII and IX, they are not unlike palmar and plantar syphilides. Their manner of production is well shown in Figure III.

PAPULAR ERUPTIONS

The papular eruption may be the precursor of the frambesiform eruptions. On the other hand they may remain papular throughout their entire existence. They have been observed oftener than the macular eruptions, described below. This type of eruption is a flat papule, varying in size from a pin's head to a split pea. The apex is red when first formed, but later is covered with the typical yellow scab. The lesions are discrete, they may remain the same size for weeks and finally disappear or later develop into the typical frambetic eruptions. We have observed them next in frequency to the frambetic eruptions, and to occur in the same places as the frambetic lesions, though we have not observed them to occur around the genitals and palms.

THE MACULAR ERUPTIONS

This type of eruption is little understood. Castellani believes it to be the remains of the papular eruptions when these disappear. Then again in another place he states that other eruptions besides the frambetic eruptions, are observed. Other writers, though write of some form of macular eruptions, their descriptions have been widely at variance, some of them describing a lesion simulating pityriasis versicolor while others write of a scaly eruption simulating psoriasis. Still others do not believe in its existence, while a few believe it to precede the other type of eruptions.

In our experience these macular eruptions do not precede any of the other types of secondary eruptions. They are a primary eruption in themselves, similar to the macular eruptions of syphilis Figure IV. They are discrete macular eruptions lighter in color than the surrounding skin. They are round in shape varying in size from the head of a match to that of a lima bean or larger. The surface is covered with a fine brawny scales

which is white in color and easily detached. When the case is seen at the clinic few of these scales remain, but closely packed around the hair follicles, they may be seen in acuminate heaps simulating follicular pin-head papules. Two or more of these patches may coalesce forming a larger lesion. They may remain as such for weeks, finally disappearing, and leaving depigmented spots. Sometimes, however, papules or frambetic eruptions accidentally develop on the surface. We have not observed these types of lesions to occur at any definite time. They may occur before other types of eruptions or they may be found occurring after the frambetic or papular eruptions have healed from insufficient injections of salvarsan. These eruptions are not very rare nor are they commonly observed. Inexperienced observers might easily mistake them for pityriasis or other fungus infections. We have found this type of eruption to yield quickest to salvarsan.

Closely related to this type of eruption is an eruption which we have termed, for want of better name, ichthyosis-like shins. There is found diffusely over the entire anterior portion of the shin or in some cases around the leg, fine white or brownish white scales, with the natural lines of cleavage of the skin were pronounced. The scales are more adherent than the preceding type of eruption Fig. V. Indifferently scattered over the surface may be found pin-head papules. This type of eruption is not common. It may be found in association with the other types of eruption mentioned. We have only observed it to occur in children.

THE TERTIARY ERUPTIONS

The disease may end with the disappearance of the secondary eruptions. On the other hand after these disappear or found with the secondary eruptions may be observed the tertiary lesions. The tertiary lesions generally described in literature are the bone lesions and gummata. Plantar lesions or foot yaws have also been described by Howard.

THE BONE LESIONS

These are chronic periostitis or nodules under the periosteum. According to Maul these nodules may be found in the cortex of the bone sometimes forming sinuses from the center of the bone. In most cases, however, the nodules are found underneath the periosteum which may be perceived underneath the skin. Long bones seem to be more prone to these lesions, though other bones are not immune. These lesions are painful, and disabling to the patient. Examples of this type of eruption may be seen in Figure VI.

GUMMATA

These types of lesion simulate the gummatous formation of the tertiary stage of syphilis and it may be difficult to differentiate them from the latter, Figure VII. They are indolent ulcers covered with yellowish brown scabs, involving the subcutaneous tissue. The edges are clear cut; if the scab is taken off the fundus will be found granulating. Both of the cases shown in the figure yielded to a single injection of salvarsan.

KERATOSIS

This is the commonest lesion found in the tertiary stage of the disease and the one least known. Different appellation have been given to it. Castellani calls them, "A peculiar pitted appearance of the hands," Howard by the name of foot yaws and still others by clavus. As observed by Cas-

tellani the lesions may be seen in the latter part of the secondary period; on the other hand they may appear years later, that the individuals suffering from it may have forgotten entirely the connection between it and the yaws they had in childhood. In some of our cases a history of yaws was obtained in childhood and these lesions did not appear till the patient reached the adult age, or about 15 years after the yaws lesions have disappeared. Examples of this type of eruption may be found in Figure VIII.

TREATMENT

The doses given to our cases varied with the age and the weight of the individuals. In general the dose given was calculated at 0.1 per twenty-five pounds of weight. In children, however, we have given higher doses in proportion to the average adult dose as may be seen the accompanying table. We cannot over emphasize the fact that the drug, though most potent in the treatment of the disease is highly toxic. The usual precautions observed before the treatment in syphilis have been carried out and we are glad to report that no serious accident have occurred. There were no serious reactions such as the "nititoid" or Hexheimer's; and only vomiting and slight fever for a few hours were observed by us.

THE EFFECT OF THE TREATMENT

In the number of cases studied we could not control the result of the treatment by blood reactions. The blood reaction of some of these cases, however, as well as the effect of the injections to it, have been studied by Drs. Sellards and Goodpasture. Clinically the disease yielded to a single injection in most of our cases, as may be noted in the accompanying table. The lesions dried up in from five to ten days. The lesions which yielded best to the treatment were the secondary lesions, and of these, the macular lesions healed quickest. The primary lesions did not do very well with the treatment, that is, they required more than one injection, in some cases, as many as three injections were given, before the lesions finally healed. The fact that these ulcers were found in the lower extremities and that these patients were not over anxious in cleaning them may have some effect on the treatment. Some gummatous lesions healed with one injection, on the other hand bone lesions and keratosis, as was expected required more than a single injection. We could not give these type of cases the required amount of treatment as the appropriations for the drug was limited.

All of our cases yielded to one or two injections and at the time of writing January 6, 1922, in only fifteen cases were lesions found to be present or in 5.81 per cent, there were lesions found presumably either a recurrence of the disease or lesions that have not healed. According to Dr. Fernandez, who inspected these cases, these lesions found at the time of inspection were not typical yaws lesions but ulcers simulating tropical ulcers. However, that may be, a clinical cure of 94.54 per cent in one or two injections is quite remarkable. As may be seen from the accompanying table the date of this inspection occurred in some cases three months after the injection while in others only one month has elapsed. We should not say that a clinical cure has occurred till some months have passed, and this may not even be fully determined till years after when no tertiary lesions appear in these cases. A monthly report of these individuals will be made to show further observations.

SUMMARY OF REPORT

1. Yaws is prevalent in Parañaque. The extent of the infection can not be determined in the present report. It is our belief, however, that it is the most prevalent disease in the locality.

2. The barrio of San Dionisio is heavily infected, there being 134 cases from this locality out of 275 cases treated altogether, or 48.72 per cent. of the cases are from this barrio.

3. The disease affects mostly children between the ages of three and fifteen years, and thereby prevents the full development of some of these children.

4. The disease is practically confined to the poor. We found only two cases from families of the better class.

5. The disease is transmitted through direct contact. An abrasion, a sore, or a wound on the skin serves as the starting-point of the disease. We found many of the children infected with scabies and we believe this condition to be responsible in most cases for the spread of the disease.

6. The later stages of the disease are invalidating, especially the bone and joint lesions as well as the keratotic lesions of the feet.

7. The disease yields readily to *salvarsan* or *neo-salvarsan* injections. Though our records are still incomplete to enable us to tell if all the cases treated are entirely cured, yet we believe that most of the cases are effectively cured. If such were not the case, these individuals would have presented themselves again for reinjection, as did those who did not get well with a single injection.

8. The drug, however, requires experienced hands for its administration, although we have not had any serious ill-effects from its use in 275 cases and 363 injections.

RECOMMENDATIONS

1. It is recommended, as a prophylactic measure, that the people be instructed to apply for treatment, whenever they have a sore or a wound, however small it may be, and that the municipal physician be instructed to treat these cases till they are cured, since they are the starting-point of the disease. Stress must be put on the frequency of scabies cases in this locality. These cases must be treated as in the cases of wounds as mentioned above. For scabies, the following formula has been found efficacious:

R.

Sulphur sublimate.....	10.00
Balsam of Peru.....	12.00
Lanolin	
Vaseline sa.....	15.00

S. For external use.

This is to be applied nightly, preceded on the first night by a thorough hot bath. The application is continued for three successive nights. On

the fourth day a general bath is given and all the clothes used by the individual are changed and boiled before used again.

2. That the foregoing measures may be carried out effectively, it is suggested: (1) That the municipal council pass an ordinance to the effect that every person having an abrasion, wound, or scabies, or any scratch on the skin, should apply for treatment to the municipal physician; (2) That the police and the sanitary inspectors shall be empowered to detain any such person for treatment; (3) That a penalty, in the form of fines, be imposed on persons found with untreated wounds, abrasions, or scabies; (4) That the funds thus collected be used in buying medicines.

3. All cases of yaws in the infective stage, that may have escaped treatment, as well as cases that may recur after treatment, should be promptly treated.

4. A monthly report of the condition of the cases treated by us as well as those subsequently treated would be necessary, to find out the efficacy of the campaign.

5. Inasmuch as the disease yields readily to treatment and that, if left alone, it causes much suffering and disability, it is recommended that a roving commission with a trained personnel be sent out to the provinces to treat all cases of yaws. There are localities in other provinces which are as heavily infected as Parañaque.

6. Since the Rockefeller Foundation is willing to help us in matters of public health, it is suggested that its attention be invited to this disease, as endemic in different localities of the Islands which causes much suffering.

GENERAL STATISTICS

[Unless otherwise stated these statistics are for the month of March, 1922]

ESTIMATED POPULATION OF THE CITY OF MANILA FOR 1922¹

BY NATIONALITIES

Nationality.	Population.
Americans	3,184
Filipinos	273,497
Spaniards	1,955
Other Europeans	1,126
Chinese	17,856
All others	2,186
Total	299,754

BY DISTRICTS

Health district.	Population.
No. 1, Intramuros	86,856
No. 2, Meisic	102,678
No. 4, Sampaloc	48,651
No. 5, Tondo	79,477
No. 6, Paco	82,097
Total	299,754

¹ Estimated on the basis of last figures published by the Census Office.

METEOROLOGICAL REPORT FOR MANILA CENTRAL OBSERVATORY DEDUCED FROM HOURLY OBSERVATIONS, MARCH, 1922

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Date.	Pres- sure mean. ¹	Temperature.						Relative humidity.			
		In shade. ²				Underground.		Mean.	Daily mean maxi- mum.	Day.	Daily mean mini- mum.
		Mean.	Absolute maxi- mum.	Day.	Absolute mini- mum.	0.50 m.					
						8 a. m. mean.	2 p. m. mean.				
		°C.	°C.	°C.	°C.	°C.	°C.	Per cent.	Per cent.		
1-10.....	mm. 760.61	25.7	33.8	7	18.5	8	27.6	28.2	2	66.3	8
11-20.....	60.28	26.4	34.3	19	19.5	11	27.5	28.2	16	67.5	18
21-31.....	59.26	26.9	34.8	21	19.9	24	28.4	29.1	26	66.1	21
Date.	Prevail- ing di- rection.	Wind.			Atmidometer (open air). ³		Sunshine.		Rainfall.		
		Velocity.			Total.	Day.	Total.	Daily maxi- mum.	Day.	Total.	
		Total.	Daily total maxi- mum.	Day.							
		1-10.....	SE	Km. 2,047.5	Km. 240.0	2	mm. 57.5	4	h m 62-00	h m 10-05	4	mm. 0	0
11-20.....	SE	1,967.5	226.0	15	58.9	14	60-15	8-50	17	0	0
21-31.....	SE	2,376.5	274.0	30	60.0	21	74-25	9-28	20	6.5	2

¹ Corrected for instrumental error and for temperature and reduced to sea level. Correction to standard gravity, -1.72 mm.

² These values are taken from instrument mounted in the Observatory Park, 1.5 meters above ground.

BIRTHS REPORTED IN THE CITY OF MANILA

[Stillbirths not included]

Nationality.	Male.	Female.	Total.	Annual birth rate per 1,000.
Americans.....	8	6	9	33.33
Filipinos.....	617	592	1,209	53.08
Spaniards.....	4	4	4	24.11
Other Europeans.....	4	3	7	73.25
Chinese.....	30	17	47	31.01
All others.....	6	5	11	59.29
Total.....	664	623	1,287	50.59

BIRTHS, BY DISTRICTS

Health districts.	Legitimates.			Illegitimates.			Grand total.	Annual birth rate per 1,000.
	Male.	Female.	Total.	Male.	Female.	Total.		
No. 1, Intramuros.....	115	94	209	3	11	14	223	71.29
No. 2, Meisic.....	97	80	177	7	9	16	193	22.15
No. 4, Sampaloc.....	97	87	184	6	6	12	196	47.47
No. 5, Tondo.....	251	224	475	18	20	38	513	76.05
No. 6, Paco.....	67	79	146	3	13	16	162	59.47
Total.....	627	564	1,191	37	59	96	1,287	50.59

Number of births attended by physician, living, 321; stillbirths, 20.

Number of births attended by midwife, living, 129; stillbirths, 6.

Number of births attended by family, living, 837; stillbirths, 20.

NUMBER OF DEATHS AND DEATH RATE PER 1,000 AMONG RESIDENTS IN THE CITY OF MANILA, BY NATIONALITIES

[Stillbirths not included]

Nationality.	Male.	Female.	Total.	Annual death rate per 1,000.
Americans.....	2	2	2	7.52
Filipinos.....	253	299	552	28.09
Spaniards.....	4	4	4	24.11
Other Europeans.....	1	1	1	10.46
Chinese.....	15	5	20	18.20
All others.....	3	3	6	82.34
Total and average.....	375	310	685	26.92

TOTAL DEATHS BY SOCIAL CONDITION, INCLUDING TRANSIENTS

Social condition.	Male.	Female.
Married.....	110	70
Divorced.....	26	54
Widowed.....	316	220
Single.....	2	2
Condition not stated.....		
Total.....	454	346
Grand total.....	800	

Stillbirths.....	46
Number of deaths with medical attendance.....	425
Number of deaths without medical attendance.....	375

DEATHS BY AGES IN THE CITY OF MANILA

[Stillbirths not included]

Ages.	Residents.		Transients.		Total.
	Male.	Female.	Male.	Female.	
Under 30 days.	41	44	1	.....	86
30 days to under 1 year.	99	65	15	9	188
1 year to under 2 years.	31	20	5	2	58
2 years to 4 years.	25	19	2	1	47
5 years to 9 years.	9	14	2	1	26
10 years to 14 years.	10	12	2	2	26
15 years to 19 years.	21	15	5	2	43
20 years to 29 years.	49	26	19	5	99
30 years to 39 years.	23	22	6	3	54
40 years to 49 years.	26	21	7	5	59
50 years to 59 years.	13	8	5	3	29
60 years to 69 years.	12	12	7	2	33
70 years to 79 years.	8	11	2	.....	21
80 years to 89 years.	3	13	.....	.....	16
90 years to 99 years.	5	7	.....	.....	12
100 years and over. . . . .	.....	.....	.....	.....	.....
Age not stated. . . . .	.....	1	.....	.....	1
Total.	375	310	78	35	798

One (1) American male of unknown age, and one (1) Filipino male of 45 years permanent residence unknown not included in this table.

DEATHS AND DEATH RATE PER 1,000, BY DISTRICTS, INCLUDING TRANSIENTS

[Stillbirths not included]

Health districts.	Deaths.	Annual death rate per 1,000.
No. 1, Intramuros.	154	49.23
No. 2, Molo.	126	14.46
No. 4, Sampaloc.	117	23.38
No. 5, Tondo.	331	49.07
No. 6, Paco.	72	26.43
Total.	800	31.44

NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG RESIDENTS IN THE CITY OF MANILA

[Stillbirths not included]

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
I. General diseases.													
1. Typhoid fever.....			30	24					2	1	2	1	60
4. Malaria.....			4	2									6
6. Measles.....				1									1
8. Whooping cough.....			1	1									2
9. Diphtheria and croup.....			1	1									2
10. Influenza.....			2	5									7
12. Asiatic cholera.....			1	1									2
14. Dysentery.....			3	3									6
17. Leprosy.....			1	1									2
20. Purulent infection and septicæmia.....			2	1									3
24. Tetanus.....			6	3									9
27. Beriberi.....			1	1									2
27a. Beriberi infantile.....													
28. Tuberculosis of the lungs.....			30	27					1	1			58
29. Acute military tuberculosis.....			57	43									101
30. Tuberculous meningitis.....			1	1									2
31. Abdominal tuberculosis.....			3	6									9
34. Tuberculosis of other organs.....			1	1									2
35. Disseminated tuberculosis.....			2	1									3
37. Syphilis.....													
40. Cancer and other malignant tumors of the stomach, liver, rectum.....				2									2
41. Cancer and other malignant tumors of the peritoneum, intestine, and other organs.....													
42. Cancer and other malignant tumors of the female genital organs.....			1	1				1					3
43. Cancer and other malignant tumors of the breast.....				1									1
45. Cancer and other malignant tumors of other organs or of organs not specified.....													
46. Cancer and other malignant tumors of other organs or of organs not specified.....			2	1				1					3
51. Exophthalmic goitre.....				1									1
54. Anæmia, chlorosis.....													
II. Diseases of the nervous system and of the organs of special sense.													
60. Encephalitis.....				2									2
61. Simple meningitis.....													
(1) Simple meningitis.....			9	9									18

NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG RESIDENTS IN THE CITY OF MANILA—Continued.

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
II. Diseases of the nervous system and of the organs of special sense—Ctd.													
64. Cerebral hemorrhage, apoplexy			8	4					1				8
66. Paralysis without specified cause.			2	1									3
67. General paralysis of the insane				1									1
68. Other forms of mental alienation.			1	1									2
71. Convulsions of infants (under 5 years of age)			1										1
III. Diseases of the circulatory system.													
77. Pericarditis													1
78. Acute endocarditis			1	2									3
79. Organic diseases of the heart.			6	3	1				2		1		13
80. Angina pectoris.			3	1									4
81. Diseases of the arteries, atheroma, aneurysm, etc.			1	1					1				3
82. Embolism and thrombosis.													1
84. Diseases of the lymphatic system (lymphangitis, etc.)				1									1
IV. Diseases of the respiratory system.													
89. Acute bronchitis			36	17					1	1			55
90. Chronic bronchitis			10	5								1	16
91. Broncho-pneumonia.			29	22					1	1			53
92. Pneumonia.			4	7									11
93. Pleurisy			2	1									3
94. Pulmonary congestion, pulmonary apoplexy				1									1
96. Asthma.			2	1									3
98. Other diseases of the respiratory system (tuberculosis excepted)				1									1
V. Diseases of the digestive system.													
102. Ulcer of the stomach					1								1
103. Other diseases of the stomach (cancer excepted)												1	1
104. Diarrhoea and enteritis (under 2 years)			13	7									20
105. Diarrhoea and enteritis (2 years and over)			2	3									5
107. Intestinal parasites			1										1
108. Appendicitis and typhlitis.			2										2
109. Hernias, intestinal obstructions.				2									2
115. Other diseases of the liver.			1	1					1				3
117. Simple peritonitis (nonpuerperal)			1	2					2	1			6

NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG TRANSIENTS IN THE CITY OF MANILA

[Stillbirths not included]

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
I. General diseases.													
1. Typhoid fever.....			5	3					2		1		11
4. Malaria.....			1	1									1
6. Measles.....													1
14. Dysentery.....							1						1
17. Leprosy.....			1										1
20. Purulent infection and septicæmia.....			2										2
24. Tetanus.....			3	3									6
27a. Beriberi, infantile.....			7	4					1	1			10
28. Tuberculosis of the lungs.....			8										14
31. Abdominal tuberculosis.....			1	2									3
42. Cancer and other malignant tumors of the female genital organs.....													1
43. Cancer and other malignant tumors of the breast.....				1									1
45. Cancer and other malignant tumors of other organs or of organs not specified.....			2										2
II. Diseases of the nervous system and of the organs of special sense.													
61. Simple meningitis:													
(1) Simple meningitis.....			1										1
64. Cerebral hemorrhage, apoplexy.....			1										1
III. Diseases of the circulatory system.													
79. Organic diseases of the heart.....			1	2					2	1			6
IV. Diseases of the respiratory system.													
89. Acute bronchitis.....													
90. Chronic bronchitis.....			4	4									8
91. Broncho-pneumonia.....			8	3									11
92. Pneumonia.....			6	2					1				9

INFANT MORTALITY

[Stillbirths not included]

Causes of death.	Under 24 hours.	24 hours to under 36 hours.	36 hours to under 48 hours.	48 hours to under 14 days.	14 days to under 1 year.	Total.
4. Malaria.....					1	1
10. Influenza.....					2	2
14. Dysentery.....					1	1
24. Tetanus.....		1		3	2	6
27a. Beriberi infantile.....				6	62	68
28. Tuberculosis of the lungs.....					1	1
30. Tuberculous meningitis.....					2	2
35. Disseminated tuberculosis.....					1	1
61. Simple meningitis:						
(1) Simple meningitis.....				1	6	7
71. Convulsions of infants.....					1	1
84. Diseases of the lymphatic system (lymphangitis, etc.).....	1					1
89. Acute bronchitis.....					44	44
90. Chronic bronchitis.....					7	7
91. Broncho-pneumonia.....	1				23	24
93. Pleurisy.....					2	2
94. Pulmonary congestion, pulmonary apoplexy.....	1					1
103. Other diseases of the stomach (cancer excepted).....					1	1
104. Diarrhoea and enteritis.....				1	12	13
115. Other diseases of the liver.....					1	1
117. Simple peritonitis (nonpuerperal).....					1	1
119. Acute nephritis.....					1	1
120. Bright's diseases.....					1	1
144. Acute abscess.....					1	1
150. Congenital malformations (stillbirths not included):						
(2) Congenital malformations of the heart.....	1					1
151. Congenital debility, icterus, and sclerema:						
(1) Premature birth (not stillborn).....	6			2		8
(2) Congenital debility.....	13		1	28	29	71
152. Other causes peculiar to early infancy:						
(1) Injuries at birth (not stillborn).....	1					1
(2) Other causes peculiar to early infancy.....	1			2	2	5
Total.....	25	1	1	43	204	274

ANTI-PLAGUE CAMPAIGN IN THE CITY OF MANILA

Number of spring traps set.....	18,295
Number of rats caught with spring traps.....	3,062
Number of wire traps set.....	217
Number of rats caught by wire traps.....	0
Number and kind of baits (coconuts).....	18,414
Number of poison portions placed.....	17,582
Number of rats found poisoned.....	424
Number of rats killed by clubs and other weapons.....	553
Number of rats found dead from other causes.....	254
Total number of rats otherwise caught, found dead or killed.....	4,293
Total number of rats sent to the laboratory for examination.....	4,293
Total number of rats found positive for plague.....	0

**TYPHOID AND PARATYPHOID FEVER REPORTED DURING THE MONTH OF
MARCH, 1922, CITY OF MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	10	0	41	3	29	4	29	7	6	1	130
Female.....	10	0	12	5	16	7	13	8	6	0	77
Dead:											
Male.....	0	0	5	2	2	1	3	4	1	1	19
Female.....	1	0	3	1	0	1	2	0	3	0	11
Total:											
Male.....	10	0	46	5	31	5	32	11	7	2	149
Female.....	11	0	15	6	16	8	15	8	9	0	88
Grand total..	21	0	61	11	47	13	47	19	16	2	237

DEATHS

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	1	0	14	2	7	0	9	1	2	1	37
Female.....	1	0	6	1	6	1	4	1	5	0	25
Total.....	2	0	20	3	13	1	13	2	7	1	62

Total cases reported within the month.....	261
Provincial cases reported in the city of Manila.....	24
Foreign cases reported in the city of Manila.....	0
City cases reported (residents only).....	237
Total deaths reported within the month.....	71
Deaths among provincial cases reported in Manila.....	9
Deaths among foreign cases reported in Manila.....	0
Deaths among city cases.....	62
Total cases confirmed as typhoid fever.....	258
Widal reaction.....	26
Faeces.....	44
Blood culture.....	0
Autopsy.....	0
Clinically positive.....	183
Cases confirmed as paratyphoid fever.....	8
Cases not confirmed.....	8

Paratyphoid fever..... } Province: 0 case, 0 death.
 } City: 8 cases, 1 death.¹

¹ All included in the above table.

**DYSENTERIES REPORTED DURING THE MONTH OF MARCH, 1922, CITY OF
MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	0	0	0	0	0	0	1	1	0	0	2
Female.....	1	0	0	0	2	0	0	1	0	0	4
Dead:											
Male.....	0	0	0	0	0	1	0	2	0	0	3
Female.....	0	0	0	0	0	2	0	1	0	0	3
Total:											
Male.....	0	0	0	0	0	1	1	3	0	0	5
Female.....	1	0	0	0	2	2	0	2	0	0	7
Grand total..	1	0	0	0	2	3	1	5	0	0	12

DEATHS

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	0	0	0	0	0	1	0	2	0	0	3
Female.....	0	0	0	0	0	2	0	1	0	0	3
Total.....	0	0	0	0	0	3	0	3	0	0	6

Total cases reported within the month.....	13
Provincial cases reported in the city of Manila.....	1
City cases (residents only).....	12
Total deaths reported within the month.....	7
Deaths among provincial cases reported in the city of Manila.....	1
Deaths among city cases.....	6
Reported as:	
Amoebic dysentery.....	2
Acute dysentery.....	2
Bacillary dysentery.....	0
Chronic dysentery.....	0
Dysentery.....	9
Erroneously reported as dysentery.....	0
Total.....	13
Dysentery carrier—1 living.	

**CONFIRMED CHOLERA CASES REPORTED DURING THE MONTH OF MARCH,
1922, CITY OF MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	0	0	0	0	1	0	0	0	0	0	1
Female.....	0	0	0	0	2	0	0	0	0	0	2
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total:											
Male.....	0	0	0	0	1	0	0	0	0	0	1
Female.....	0	0	0	0	2	0	0	0	0	0	2
Grand total..	0	0	0	0	3	0	0	0	0	0	3

DEATHS

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	0	0	0	0	1	0	0	0	0	0	1
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total.....	0	0	0	0	1	0	0	0	0	0	1

Total cases reported within the month.....	3
Provincial cases reported in Manila (confirmed).....	0
Foreign cases reported in the city of Manila.....	0
City cases reported (residents only).....	3
City cases confirmed as cholera.....	3
City cases not confirmed (found negative).....	0
Total deaths reported within the month.....	1
Deaths among provincial cases reported in Manila.....	0
Deaths among foreign cases reported in Manila.....	0
Deaths among city cases.....	1
City deaths confirmed as cholera.....	1
City deaths not confirmed.....	0
Cholera carriers—3 living, 16 dead bodies.	

DIPHTHERIA REPORTED DURING THE MONTH OF MARCH, 1922, CITY OF MANILA, RESIDENTS ONLY

CASES

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	0	0	1	0	0	0	0	0	0	0	1
Female.....	3	0	3	0	0	0	1	0	0	0	7
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total:											
Male.....	0	0	1	0	0	0	0	0	0	0	1
Female.....	3	0	3	0	0	0	1	0	0	0	7
Grand total..	3	0	4	0	0	0	1	0	0	0	8

DEATHS

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	0	0	1	0	0	0	0	0	0	0	1
Female.....	0	0	2	0	0	0	0	0	0	0	2
Total.....	0	0	3	0	0	0	0	0	0	0	3

Total cases reported within the month.....	10
Provincial cases reported in Manila.....	2
City cases reported (residents only).....	8
City cases confirmed as diphtheria.....	4
City cases not confirmed.....	4
Total deaths reported within the month.....	3
City deaths confirmed as diphtheria.....	2
City deaths not confirmed.....	1
Deaths among provincial cases reported in Manila.....	0
Diphtheria carriers—none.	

OTHER COMMUNICABLE DISEASES REPORTED IN THE CITY OF MANILA DURING THE MONTH OF MARCH, 1922, RESIDENTS ONLY

Diseases.	Cases.	Deaths.
Malaria.....	10	6
Varicella.....	0	0
Smallpox.....	73	0
Measles.....	0	0
Whooping cough.....	20	1
Influenza.....	2	1
Beriberi.....	18	7
Pulmonary tuberculosis.....	69	69
Tuberculosis of other organs.....	161	111
	18	18

PROVINCIAL CASES AND DEATHS REPORTED IN THE CITY OF MANILA NOT INCLUDED IN THE ABOVE TABLE

Diseases.	Cases.	Deaths.
Malaria	5	1
Varioloid	0	0
Varicella	11	0
Smallpox	0	0
Measles	6	1
Whooping cough	0	0
Influenza	0	0
Beriberi	1	1
Pulmonary tuberculosis	11	4
Tuberculosis of other organs	0	0

REPORT ON THE DISTRIBUTION OF ASSORTED SERA AND VACCINES

Sera and vaccines.	On hand March 1, 1922.	Received during the month.	Total to be accounted for.	Distributed during the month.	Remaining at the end of the month.
Anti-diphtheric serum (units)	280,000		280,000	60,000	220,000
Anti-dysenteric serum (ampoules)	18		18		18
Anti-tetanic serum (units)		310,000	310,000	310,000	
Cholera vaccine (c.c.)	8,600	12,170	20,770	20,370	400
Dried vaccine virus (units)	1,000	14,500	15,500	9,500	6,000
Fresh vaccine virus (units)	56,900	300,000	356,900	260,300	96,600
Gonococcus vaccine (ampoules)		60	60	60	
Mixed typhoid and cholera vaccine (c.c.)	300	93,850	93,650	88,540	5,110
Normal horse serum (ampoules)					
Typhoid and paratyphoid (ampoules)	580	5,900	6,480	5,880	600

SMALLPOX VACCINATIONS IN THE CITY OF MANILA, DURING THE MONTH OF MARCH, 1922

Health districts.	Total vaccina- tions.	Total inspec- tions.	Positive.	Negative.
No. 1, Intramuros	916	320	278	42
No. 2, Meisic	4,458	462	355	107
No. 4, Sampaloc	2,695	307	282	25
No. 5, Tondo	4,599	568	474	94
No. 6, Paco	8,717	287	247	40
Total	21,385	1,944	1,686	308

CONSOLIDATED CHOLERA VACCINATIONS FOR THE MONTH OF MARCH IN THE CITY OF MANILA

Districts.	Number of persons vaccinated.								Total.
	Males.				Females.				
	Double injections.		Single injections.		Double injections.		Single injections.		
	A.	C.	A.	C.	A.	C.	A.	C.	
No. 1, Intramuros.....	945	180	2,734	271	398	216	907	252	5,908
No. 2, Meisic.....	1,993	64	5,501	133	391	56	1,984	130	10,242
No. 4, Sampaloc.....	26	19	971	280	43	34	689	222	2,284
No. 5, Tondo.....	263	141	1,027	875	275	101	1,001	1,025	4,708
No. 6, Paco.....	599	569	749	934	283	309	481	556	4,480
Total.....	3,826	973	10,982	2,493	1,390	716	5,062	2,175	27,617

NOTE.—A, means adults; C, children.

**CONSOLIDATED TYPHOID VACCINATIONS FOR THE MONTH OF MARCH IN
THE CITY OF MANILA**

Districts.	Number of persons vaccinated.				Total.
	Males.		Females.		
	Adults.	Children.	Adults.	Children.	
No. 1, Intramuros.....	3,858	493	1,297	409	6,057
No. 2, Meisic.....	7,443	201	2,338	164	10,146
No. 4, Sampaloc.....	1,719	403	1,348	356	3,826
No. 5, Tondo.....	1,217	978	1,234	1,087	4,516
No. 6, Paco.....	1,347	1,506	803	880	4,536
Total.....	15,584	3,581	7,020	2,896	29,081

TOTAL VACCINATION OF SMALLPOX IN THE PROVINCES FOR THE YEAR, 1922¹

Provinces.	Vaccinations.	Inspections.	Positive.	Negative.
Abra.....	1,853	1,713	1,112	601
Albay.....	7,986	5,142	3,447	1,695
Antique.....	2,898	2,440	1,691	749
Bataan.....	2,010	1,946	1,537	409
Batangas.....	12,076	3,819	2,812	1,007
Bohol.....	9,164	7,259	4,873	2,386
Bulacan.....	6,050	3,752	2,812	940
Cagayan.....	1,035	388	200	188
Camarines Norte.....	249	249	175	74
Camarines Sur.....	8,443	6,276	4,458	1,818
Capiz.....	4,478	4,232	3,570	662
Catanduanes.....	20,484	13,659	8,887	4,772
Cavite.....	2,353	2,886	2,034	852
Cebu.....	35,713	23,613	12,775	10,838
Cotabato.....	4,866	2,232	391	1,841
Davao.....	819	804	555	249
Ilocos Norte.....	3,962	3,320	1,472	1,848
Ilocos Sur.....	7,842	6,687	4,250	2,437
Iloilo.....	16,374	9,876	7,387	2,489
Isabela.....	986	698	233	465
Laguna.....	3,378	2,687	1,856	831
La Union.....	2,491	2,441	945	1,496
Leyte.....	9,838	4,848	3,515	1,333
Marinduque.....	3,626	2,495	1,576	919
Masbate.....	699			
Mindoro.....	3,323	1,978	1,082	896
Misamis.....	768	376	248	128
Mountain Province.....	1,907	799	505	294
Nueva Ecija.....	34,075	24,191	14,345	9,846
Nueva Vizcaya.....	640	613	490	123
Oriental Negros.....	3,166	2,278	1,485	793
Occidental Negros.....	4,701	3,831	2,607	1,224
Palawan.....	490	490	248	242
Pampanga.....	3,469	1,905	1,431	474
Pangasinan.....	37,042	32,135	16,171	15,964
Rizal.....	9,039	7,162	4,512	2,650
Romblon.....	1,070	1,050	884	166
Samar.....	1,622	1,546	797	749
Sulu.....	36	33	5	28
Surigao.....	3,151	2,851	1,543	1,308
Tarlac.....	1,819	1,734	1,238	496
Tayabas.....	4,899	4,407	3,077	1,330
Zambales.....	1,964	1,866	1,623	243
Zamboanga.....	863	640	421	219
Total.....	283,717	203,347	125,275	78,072

¹ Compilation of reports received since January.

Other reports not yet received.

**CONSOLIDATED CHOLERA VACCINATIONS REPORTED IN THE PROVINCES
SINCE JANUARY, 1922¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Abra.....	226	818	1,044
Albay.....	8,952	4,876	13,828
Antique.....	1,112	784	1,896
Bataan.....	323	195	518
Bohol.....	1,021	825	1,846
Bulacan.....	4,419	2,475	6,894
Cagayan.....	3,037	1,738	4,775
Camarines Norte.....	507	66	573
Capiz.....	1,782	861	2,643
Cavite.....	6,569	4,102	10,671
Cebu.....	2,341	1,456	3,797
Ilocos Norte.....	403	666	1,069
Ilocos Sur.....	3,526	2,648	6,274
Iloilo.....	372	1,178	2,150
Laguna.....	3,022	4,722	7,744
La Union.....	3,802	2,563	6,365
Leyte.....	747	414	1,161
Marinduque.....	369	185	554
Mindoro.....	951	526	1,477
Misamis.....	98	85	183
Nueva Ecija.....	1,091	1,083	2,174
Nueva Vizcaya.....	468	637	1,105
Oriental Negros.....	2,556	2,044	4,600
Pampanga.....	3,420	3,156	6,576
Pangasinan.....	3,628	2,915	6,543
Rizal.....	13,646	8,922	22,568
Romblon.....	120	97	217
Sorsogon.....	1,310	703	2,013
Sulu.....	787	110	897
Tarlac.....	248	101	349
Tayabas.....	1,839	318	2,157
Zambales.....	2,150	1,891	4,041
Zamboanga.....	252	272	524
Total.....	75,694	53,432	129,126

¹ Compilation of reports received.

Other reports not yet received.

**CONSOLIDATED TYPHOID VACCINATION REPORTED IN THE PROVINCES
SINCE JANUARY, 1922¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Cavite.....	21	11	32
Ilocos Sur.....	622	765	1,387
Laguna.....	1,428	175	1,603
La Union.....	398	110	508
Total.....	2,469	1,061	3,530

¹ Compilation of reports received.

Other reports not yet received.

**CONSOLIDATED ANTIFETIC AND ANTICHOLERIC VACCINATIONS REPORTED
IN THE PROVINCES SINCE JANUARY, 1922¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Cavite.....	24	18	37
Ilocos Sur.....	821	819	1,640
Pampanga.....	601	322	923
Tayabas.....	83	.....	83
Total.....	1,529	1,154	2,683

¹ Compilation of reports received.

Other reports not yet received.

SMALLPOX REPORTED FROM THE PROVINCES, FOR THE MONTH OF MARCH, 1922

Provinces and towns.	Cases.	Deaths.
Oriental Negros:		
Siaton.....	8	2
Mindoro:		
Calapan.....	1	.....
Total	4	2

CHOLERA REPORTED FROM THE PROVINCES, FOR THE MONTH OF MARCH, 1922

Provinces and towns.	Cases.	Deaths.
Bulacan:		
Hagonoy.....	2	2
Camarines Sur:		
Naga.....	1
Mindoro:		
Lubang.....	3
Total	6	2

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THE GOVERNMENT OF THE PHILIPPINE ISLANDS
DEPARTMENT OF PUBLIC INSTRUCTION

MONTHLY BULLETIN
OF THE
PHILIPPINE HEALTH SERVICE

VOL. II

APRIL, 1922

No. 4

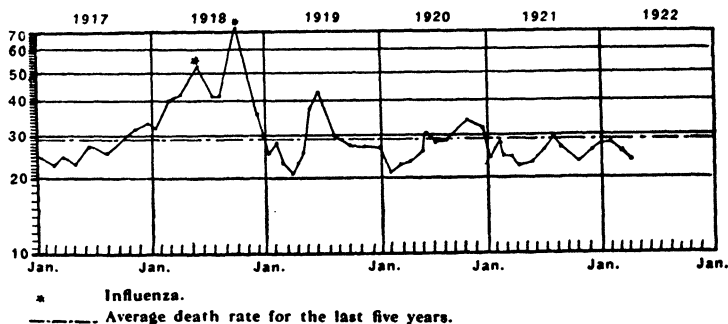
The keystone of a nation's progress is sanitation and education.



CONTENTS

1. Observations on some of the recent work regarding the chemotherapeutics of chaulmoogra oil derivatives.
2. Establishment of emergency camps following great disasters.
3. Vital statistics for April.

ANNUAL DEATH RATES BY MONTH, CITY OF MANILA



MANILA
BUREAU OF PRINTING
1922

COMMITTEE ON THE MONTHLY BULLETIN, P. H. S.

S. V. DEL ROSARIO, *Assistant Director of Health, Chairman*
J. P. BANTUG, *Senior Medical Inspector, P. H. S., Member*
L. LOPEZ RIZAL, *Senior Medical Inspector, P. H. S., Member*
M. V. ARGUELLES, *Senior Surgeon, P. H. S., Secretary*

PROCURE A BALANCED DIET FOR YOU AND YOUR FAMILY

1. A diet containing protein, fat, carbohydrate mineral salts and vitamins in the proper proportions is called a balanced diet.

2. Avoid one-sided diet, or too much of one kind of food principle and too little or devoid of another. The well-to-do has always the tendency to high protein diet while the poor to too much carbohydrate food.

3. A balanced diet must contain the following food principles:

(a) Proteins for the growth and repair of the body.

(b) Carbohydrates and fats which are the energy producing materials.

(c) Inorganic mineral salts to build up the bony tissues and maintain the alkalinity of the blood.

(d) Vitamins to maintain a normal metabolism. Transformation of food into assimilable substances.

4. Sources of:

(a) Proteins: meats, fish, fowls, eggs, milk, peas, beans, cheese, peanuts, pill-nuts, mongo, etc.

(b) Carbohydrates: cereals, tubers (potato, gabi, camote, ubi), sugars, fruits (bananas, mangoes, atis, etc.).

(c) Fat: butter, oils, fat of meat, the oil of nuts, and seeds (peanuts, casuy, pill-nuts).

(d) Inorganic mineral salts: milk, juicy fruits, leafy vegetables, salads, common salt, etc.

(e) Vitamins: abundant in seeds, outer layers of rice kernels, milk, butter, cheese, egg yolk, liver, kidneys, greens, leafy vegetables, etc.

5. Prolonged practice of an unbalanced diet may cause one of the following affections:

(a) Scurvy due to prolonged consumption of preserved foods and cereals and lack of fresh fruits and vegetables.

(b) Beriberi caused by a monotonous diet consisting chiefly of polished rice.

(c) Rickets and marasmus from an excess of amylaceous and lack of animal food and mineral matter.

(d) Acne or eczema from food too rich in carbohydrates and fats.

(e) Constipation from too highly digestible diets containing little residue in the form of cellulose.

6. (a) Use undermilled rice (pinawa) instead of the polished grain; eat fresh meat, fresh vegetables and fruits, greens, milk, eggs and mongo to prevent beriberi.

(b) The addition of orange juice, fresh vegetables and fresh fruits to the diet prevents and cures scurvy.

(c) Human milk, fresh cow's milk, fresh fruits and orange juice prevents the onset of rickets.

7. The quantity of food required to maintain bodily vigor varies with the climate, season, occupation, exercise, state of individual health, age, sex, and body weight.

Examples: A laborer needs more carbohydrates and fats than a clerk. Invalids must choose nourishing but easily digestible foods.

8. Children as well as adults should drink plenty of water between meals.

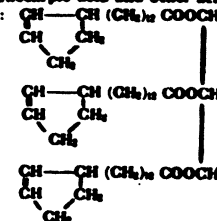
9. Avoid alcoholic drinks and do not drink coffee and tea in excess.

10. Regularity of meals and thorough mastication of foods are indispensable adjuvants of a balanced diet towards the attainment of a perfect health, normal development, and bodily vigor.

UNIVERSITY OF HAWAII
OFFICIAL OUTLINE OF THE
DEAN PROCESSES
FOR THE PREPARATION OF
CHAULMOOGRA OIL DERIVATIVES
FOR THE TREATMENT OF
LEPROSY
 HONOLULU, T.H., FEBRUARY 22, 1921
 REVISED NOVEMBER 1, 1921
 RICHARD WRENSHALL

CHAULMOOGRA OIL ②

This oil is pressed from the seeds of the Taraktogenos Kerrii, a tree found in Assam and Burmah. It is composed of the glycerides of chaulmoogric acid, hydnoic acid and other acids of composition yet unknown. The formula for the glyceride of chaulmoogric acid is:



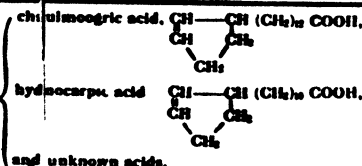
Saponify by heating with caustic soda and water under 15 lbs. steam pressure for 1 1/2 hours

SODIUM SOAPS OF MIXED FATTY ACIDS. ③

GLYCERINE (discard this)

Acidify with com'l hydrochloric acid, wash and dry.

FREE MIXED FATTY ACIDS ④



SALT, WATER, ETC. (discard this)

PROCESS J-K
 Melt, add 2% Iodine by weight, and put into capsules. These are taken by way of the mouth by most patients at Kalihi, Kalaupapa, Louisiana, Porto Rico and the Virgin Islands. ⑤

PROCESS H-I
 Form ETHYL ESTERS of mixed fatty acids by treating with absolute alcohol and HCL gas. This gives ETHYL CHAULMOOGRATE, ETHYL HYDNOICARPATE, and ethyl esters of the unknown acids. ⑦

PROCESSES A, L, & M
 Fractionally distill 1000 gms. (± 1004 cc.) Mixed Fatty Acids under pressure of 1 1/2-2 mm.

"GREEN OINTMENT" PROCESS.
 Form Ethyl Esters of Mixed Fatty Acids as in H-I process, but omit vacuum distillation. Addition of 20% Iodine gives a thick ointment used externally by some patients. ⑥

MIXED ETHYL ESTERS, a colorless liquid. ⑧
 Addition of 2% of Iodine by weight gives Preparation H-I. ⑨
 This preparation given by intramuscular injection once a week to most patients at Kalihi, Kalaupapa, Louisiana, Porto Rico and the Virgin Islands.

PITCH (discard)

FRACTION "Hy." (350cc.) collect 4 such fractions and redistill them, cutting the distillate into 7 equal portions. ⑩

FRACTION "Mx" (300 cc.) Redistill with next lot of Mixed Fatty Acids.

FRACTION "Ch" (± 250 cc.) ⑪
 Collect and combine 4 such fractions and subject to systematic crystallization from 80% alcohol until practically 400 gms. Chaulmoogric Acid, melting at 68°, is obtained.

PITCH (discard)

Subject each of these 4 fractions to systematic crystallization, first from 80% alcohol, then from petroleum ether, until practically 200 grams of Hydnoic Acid, melting 59-60° are obtained.
 NOTE: This operation requires about one month's work.

87 Contains Chaulmoogric Acid. It is redistilled with next lot of Mixed Fatty Acids.

Semi-liquid mixture of Chaulmoogric Acid, $\text{C}_{17}\text{H}_{33}\text{COOH}$ and Taraktogenic Acid, $\text{C}_{17}\text{H}_{33}\text{COOH}$. The removal of the higher melting Chaulmoogric acid by repeated filtering and standing at room temperature leaves the mixture of these two acids of such proportion that its Iodine Number is between 125 and 135. This corresponds to a mixture composed of 40-50% Taraktogenic Acid, and 50-60% Chaulmoogric Acid. ⑬

CHAULMOOGRIC ACID, $\text{CH}-\text{CH}(\text{CH}_2)_7\text{COOH}$ ⑮
 Form its Ethyl Ester by treating with absolute alcohol and HCL gas. Distill to purify. ⑯

Semi-liquid acids of low Iodine number, specific rotation and refractive index. Composition being investigated.

HYDNOIC ACID, $\text{CH}-\text{CH}(\text{CH}_2)_7\text{COOH}$ ⑫

This mixture is esterified by treating with absolute alcohol and HCL gas. The resulting product is purified by distillation in vacuo. ⑰

ETHYL CHAULMOOGRATE, $\text{CH}-\text{CH}(\text{CH}_2)_7\text{COOC}_2\text{H}_5$ ⑰

Pitch (discard)

Form its Ethyl Ester by treating with absolute alcohol and HCL gas. Distill to purify. ⑬

ETHYL HYDNOICARPATE, $\text{CH}-\text{CH}(\text{CH}_2)_7\text{COOC}_2\text{H}_5$ ⑭

Pitch (discard)

ETHYL TARAKTOGRATE
 ETHYL CHAULMOOGRATE
 Called Preparation "M." ⑲
 Five patients at Kalihi get intramuscular injection of this alone once a week.

Called Preparation "A" Five patients at Kalihi get intramuscular injections of this alone once a week.

Reduce with Hydrogen in presence of colloidal platinum and palladium. This gives Dihydrochaulmoogric Acid, $\text{C}_{17}\text{H}_{35}\text{COOH}$. ⑲

Form its Ethyl Ester by treating with absolute alcohol and HCL gas Distill to purify.

ETHYL DIHYDROCHAULMOOGRATE, $\text{CH}_2-\text{CH}(\text{CH}_2)_7\text{COOC}_2\text{H}_5$ ⑳

PITCH (discard)

Small group of patients at Kalihi get intramuscular injection of this alone once a week.

Called Preparation "L." Five patients at Kalihi get intramuscular injection of this alone once a week.

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OBSERVATIONS ON SOME OF THE MORE RECENT WORK REGARDING THE CHEMOTHERAPEUTICS OF CHAULMOOGRA OIL DERIVATIVES

By R. G. PADUA, P. H. S.

Upon orders received from the Director of Health, Philippine Islands, the undersigned had occasion to visit the work on leprosy in the Hooper's Foundation of the University of California and Kalihi Hospital in Honolulu. The visit lasted almost two months. The undersigned owes a great deal to the kindness and courtesy shown to him by Professor E. L. Walker, University of California and Surgeon H. E. Hasseltine, United States Public Health Service in charge of the Kalihi Hospital in Honolulu.

A.—CHAULMOOGRA OIL

The oil is chiefly obtained from the native tree in India, of several closely related species, principally the *Taraktogenos kurzii* (King). It is expressed cold from the seeds or nuts of the plant, and for many years used as a palliative for leprosy. But since its introduction in the treatment of the disease, numerous attempts have been directed to the manner of its administration. It was once believed that the oil in its crude state could be given with beneficial results. Later, however, it has been made to combine with other drugs, as camphor, resorcin, iodine, guaiacol, etc., mixtures which were also claimed to have given promising results.

The oil could be administered by mouth in the form of capsules; but because of the nauseating effect and irritating action on the stomach, efforts have been made to introduce it into the system in another way. Hence, the well-known Heiser-Mercado formula, viz.:

Chaulmoogra oil.....	60 cc.
Camphorated oil.....	60 cc.
Resorcin	4 grams.

Mix and dissolve with the aid of heat on a water-bath and filter.

This was discovered and injected intramuscularly on Filipino patients with so encouraging results that further investigation along this line became stimulated in the Kalihi Hospital. In fact, in the latter, the combination of the oral and intramuscular administrations has been regarded relatively more beneficial in the majority of cases.

The intramuscular injection of the crude oil is, by far, no less objectionable than the oral administration. When thus injected into the system, it is usually painful, slowly absorbed, and with an apparent retarded action. An immense amount of work was, therefore, undertaken to convert the oil to a state whereby it became less irritating and more effective. Such chemical and clinical investigations conducted at the Leprosy Investigation Station in Honolulu have been directed to the isolation of an assumed active principle from the chaulmoogra oil, which, with the additional application of experimental methods, led to the development of the so-called Dean's formulæ.

B.—CHAULMOOGRA OIL DERIVATIVES

The researches of Dean and McDonald seem to indicate that the importance of the chaulmoogra oil, also known as the oil of gynocardium, lies, as any other allied fatty-acid-containing oil, in its physiological effects outside its nutritive value. Their studies point to a possible conclusion: that the distinctive therapeutic action seems to be due to the glycerides of the fatty acids derived from the oil or "to the presence of some other oil-soluble constituent not a glyceride" (McDonald, J. T.—Reprint, *Public Health Reports*, August 20, 1920). Among the series of unsaturated fatty acids discovered and isolated from the oil, the chaulmoogric and the hydnocarpic are considered of relatively more importance. They are optically active and each contains a five-carbon-ring nucleus.

In the Fractionation of Chaulmoogra Oil (Dean, A. L., and Wrenshall, R.—*Jr. Am. Chem. Sec.*, 1920, XLII, No. 12, 2626), an indication is made regarding the existence of a more highly unsaturated fatty acid which appears to be optically inactive and with an iodine number relatively higher than that of chaulmoogric acid. The former is assumed to be associated with the chaulmoogric acid, the mixture being accumulated as a liquid portion, unlike the pure chaulmoogric and hydnocarpic acids, from the highest boiling fraction. This liquid fatty acid mixture, with an iodine number of 125, contains about 60 per cent chaulmoogric acid and about 40 per cent of the highly unsaturated hypothetic acid with an iodine value of 180. Studies regarding the nature of this hypothetic substance, designated as *Taraktogenic acid*, are on the way; for, altho it has been regarded as particularly efficient, still it cannot altogether replace the therapeutic standing of the chaulmoogric acid or of the mixture of the fatty acids in the chaulmoogra oil.

Other fatty acids contained in the chaulmoogra oil, tho in small amounts, may be mentioned the saturated aliphatic fatty acid, palmitic acid, with glycerol, phytosterol, and possibly an insignificant quantity of cyanogenic glucosid, gynocardin, and other nitrogenous substances (Walker, E. L., and Sweeney, M. A.—Reprint, *Jr. Inf. Dis.*, 1920), which have been regarded somewhat inactive or of minor importance in the therapy of leprosy.

In the process of separation, by chemical methods in the College of Hawaii, of the fatty acids from the chaulmoogra oil, one of the fractions is chaulmoogric and the others are mixtures of acids of different properties. Since the fatty acid fractions are, at ordinary temperature, solids and therefore not available for hypodermic or intramuscular injections, the

conversion of the same into their esters, which, being thin fluid oils are suitable for injections and more readily absorbed in the tissues, become necessary. Technically, therefore, the preparation of injectable derivatives may be divided into two principal stages: the separation or isolation of the fatty acids, and the preparation of the esters; but, for the sake of specification, the process may be divided into four steps: (1) Saponification, (2) Acidulation and purification, (3) Esterification, (4) Distillation *in vacuo*. Lubwig Taub of Germany (U. S. Patent Office—Application filed February 9, 1909, Serial No. 476980 specimen) patented a preparation of the ester.

The most detailed and trustworthy information regarding the process may be obtained in the recent paper of Dean and Wrenshall (*U. S. Public Health Report—Reprint 646*, April 1, 1921, pp. 641–660).

The process of esterification consists in mixing equal volumes of absolute alcohol and the mixed fatty acids, and passing to the mixture dry hydrogen chloride.

C.—OBSERVATIONS

1. *Therapeutic action*.—The relative merits in therapeutic efficiency of the foregoing preparations are still to be determined by future studies. Whether or not the esters of the more highly unsaturated liquid fatty acid fraction of the chaulmoogra oil is particularly efficient in the treatment of leprosy, as has been claimed and as indicated by present efforts in the College of Hawaii to lessen, by experimental chemical methods, one carbon atom from the formula, it may become possible to consider that the trend of opinion lies in the activity of the closed carbon ring structure peculiar to the molecule of the chaulmoogric acid series. Walker states that, depending upon this peculiar structure existing only in chaulmoogra oil and in oils of plants closely related to *Taraktogenos kurzii*, so is its specific bacteriocidal action on acid-fast organisms, and that experimentally the specific function has not been found, as claimed by Rogers, to be exhibited by the unsaturated fatty acid of the codliver oil or of any oil other than chaulmoogric. If this action of the cyclic fatty acid of the chaulmoogric series is only restricted to the acid-fast organisms, the multiplication or viability of nonacid-fast cultures should resist the action of the chaulmoograte. Experimentally, however, such phenomenon relative to the specific bacteriocidal activity of the chaulmoogric fatty acids has been shown, *in vitro*, efficacious to all members of the acid-fast group and apparently inert to other organisms tested.

If that be so, the question arises: What is the mechanism of this specific action of chaulmoogric acids on acid-fast organisms? Rogers believes that the unsaturated fatty acids act by injuring the protective fatty capsule of the acid-fast organism. On the other hand, since it can not be denied that the growth of acid-fast bacilli is in intimate relation with the metabolic production of fats and waxes as a protective capsule, Walker offers the hypothesis that the specificity may be explained by an attempt on the part of the fat-elaborating bacilli to utilize the chaulmoogric acid, which, in terms of Ehrlich side-chain theory, contains a group or an arrangement of atoms toxic to the bacterial cell. If this be so, then it may be possible to account for the inert action of the cyclic fatty acids on nonacid-fast individuals, for, it may be conceived that the latter, not possessing the property to utilize the fat in their metabolism, do not have receptors for the haptophore group of the chaulmoogric acids.

The bacterioidically active principle, therefore, must be conclusively considered to exist in the fatty acids of the chaulmoogra oil. However, certain conditions, which may exist or be produced in the human body following the administration of the oil or its derivatives, cannot be altogether disregarded, which may contribute to the effectiveness of the fatty acids on the acid-fast organisms. For, if the dilution of about 1 : 100,000 of the chaulmoograte is the limit of its bacterioidal activity in vitro, and that a proportion of 1 : 2,000,000 to 1 : 500,000 of the body weight is the therapeutic intravenous dose in leprosy, the discrepancy does not seem to find a reasonable and safe explanation other than that of possible immunological reaction resulting from the introduction of the compound into the system.

2. *Investigation in Hooper's Foundation.*—In the Hooper's Laboratory, this relation between the bacterioidal action of the esters in vitro and the therapeutic dosage in animals is still being studied by Professor Walker. His clinical work, being limited to the reserved and almost exclusive employment of ethyl chaulmoograte on about twenty patients, most of whom are Orientals, are supplemented largely by valuable experimental investigations on rabbits. Failure to produce experimental leprosy, by repeated injections of supposed culture of the Hansen organisms, made him use, for his purpose, cultures of tubercle bacilli. Accordingly, he injects intravenously, before giving the ester treatment, on the rabbits an emulsion (2 mg. per cc.) of the three-to-four-week glycerine-agar culture of the human tubercle organism, the dose calculated to correspond with 0.5 mg. (in 0.25 cc.) per K body weight, for each particular experiment, and this depends upon the kind of esters used and the methods of administration, whether intramuscularly, intravenously, etc. About six to twelve rabbits are isolated in cages, and a reasonable number are selected as controls. If chaulmoogra oil or its derivatives, as has been explained above, act just as well on the tubercle bacillus, since it belongs to the general acid-fast group of organisms, it may not be illogical to presume that the degree of tuberculous lesion, found post-mortem in the rabbits after subjecting them to ester treatment, may suggest the relative efficiency of the drug for the development or against the progress of the disease. Such being the case, the many unanswered side-queries referable to the chemotherapeutics of the esters on leprosy may obviously be enlightened to an extent not hitherto solved by other methods of approach.

Separate experiments are, therefore, conducted by the injections of ethyl, methyl, amyl, propyl, butyl, benzyl chaulmoogrates and the sodium salts (Rogers). Usually, an initial dose of 0.0143 cc. per kilo body weight corresponding to 1 cc. per 70 K man is given, which gradually increases as the experiment progresses. Up to the time the writer left the laboratory, a dose of 0.0715 cc. per K corresponding with 5 cc. per K man was being given to quite a number of the rabbits experimented upon.

The ethyl chaulmoograte is given to the experimental animals intramuscularly and the emulsion intravenously in separate sections. Each of the other preparations is given intramuscularly in relatively heavy doses; for example, methyl ester is given at the beginning as high as 0.0715 cc. per K equivalent to 5 cc. per 70 K man. On the other hand, mixtures of all the esters and the sodium salt preparation of Rogers are each intravenously with doses similar to that of the ethyl ester. However, the intravenous administration of each of the foregoing chaulmoogric esters separately may not be regarded worthless for comparison and experimental study.

Having in mind the presumption that the ester of the chaulmoogric fatty acid behaves like other fatty acids, no matter how it is administered (personal conversation with Professor Walker), for the drug seems to be partly metabolized and stored in the tissues and partly lost somewhere, efforts to determine quantitatively whatever amount circulates in the blood at a given time have not been neglected. For this purpose, 0.5 cc. of propyl chaulmoograte is intravenously given to a rabbit twice daily for two to three weeks, if the animal resists. Analysis of the blood is made from time to time by special chemists at different intervals. At the death of the animal or after several weeks (when the animal is then killed), the different organs are examined with a view to finding out whether or not the fatty acids are retained in them. The amount metabolized is quantitatively determined by the polariscopic finding since the chaulmoogric acids are dextro-rotatory and distinguished from glycerol which is laevo-rotatory. Similarly, feeding experiments, by feeding the animal with gelatin-coated pills of fatty acids or esters (0.50 each), at a dose of one gram at one time and twice a week, are carried on for the quantitative determination of fatty acids presumably accumulated in the blood and tissues. Present results of such experiments tend to show evidences of accumulation or the existence of optically active substance in the liver, fatty tissues, and in other organs altho in relatively small quantity.

Besides the foregoing studies, the bacteriology of leprosy is, according to Walker, a baffling problem. The nasal swabbings taken weekly from the lepers are plated and studied culturally and morphologically. And altho it may seem profitable to make conjointly an immunological investigation of the organisms found in constant association with the disease, still I failed to follow whether or not his studies are directed along this line. Diphtheroids are often found in cultures from the nasal swabbing. The studies of Walker have been almost convincing relative to the ultimate development of acid-fast bacilli from the old diphtheroid culture, especially from an open leprous lesion, inoculated in Clegg's medium. Whether or not the resulting acid-fast organisms are those of leprosy, or what causes the transformation, are not definitely known. Much is, therefore, to be done in this line of study, for, the identification of the true Hansen bacillus in artificial media will become otherwise somewhat perplexing.

The clinical work in connection with the researches of Hooper's Laboratory on leprosy are, as has been above stated, confined to about 20 patients. For each one of them, the intramuscular dose of the ethyl chaulmoograte begins with one cc. and gradually increases after a reasonable length of time up to about 5 cc. The belief that propyl ester tends to produce relatively less local reaction has encouraged its intramuscular use in the treatment of some of the cases.

3. *Work in the Kalihi Hospital.*—The present work, in the Leprosy Investigation Station at Honolulu, in connection with the chemotherapeutics of chaulmoogra oil derivatives, is chiefly, if not exclusively, clinical. But, altho an emphasis is apparently laid on the treatment of the disease with the Dean preparation, as seen in the previous chart, still the hygienic measures or the sanitary surroundings have not been failing in the Hospital, which may contribute partly to what has been claimed as the beneficial effects of the chaulmoogra esters.

The patients may be group into two classes: (1) the parolers, and (2) the inmates of the Hospital. The parolers are those who, after three successive examinations at an interval of about one month, are found

bacteriologically negative and who are instructed to report every one or two weeks, one month, two months, six months, up to two or three years for observation and treatment. After that time, on the recommendation of the Surgeon in charge of the Hospital, a board may be appointed to determine whether or not the paroler can be permanently released. The in-patients are those who have been found bacteriologically positive and kept in the Hospital for treatment until discharged by proper authorities. These individuals either come to the Hospital voluntarily or are brought by someone else. However, there seems to be a great coöperation of the public and of the municipal authorities as far as this segregation is concerned, for, the patients do not feel barred from the enjoyment of home life. In the first place, the Kalihi Hospital is located on the outskirts of Honolulu and is isolated from the street by only a barbed wire fence; and, in the second place, the relatives can come and converse, but at some distance from the fence, with the patients at certain times of the day. In other words, the lepers are given splendid social, nutritional, and medical treatment; and entertainments are held occasionally. In brief, with all these inducements, the in-coming patient cannot have any reason to retract from the advice that he is to stay in the Hospital, as, in fact, the writer could observe the expression or feeling of perfect satisfaction even during the reaction following the injection of the compound.

On September 8, 1921, there were in the hospital about 150 patients, and this number increased to 173 on November 14, 1921. The lepers were of different nationalities, altho the Hawaiians and Part-Hawaiians take the lead and seem to be relatively more susceptible to this particular infection. The following table gives an idea of the distribution of the in-patients by nationalities:

	Male.	Female.	Total.
Americans.....	2	1	3
Chinese.....	2		2
Filipinos.....	9	1	10
Hawaiians.....	48	41	89
Japanese.....	14	5	19
Koreans.....	3	1	4
Part-Hawaiian.....	13	16	29
Portuguese.....	7	4	11
Porto Ricans.....	1		1
French.....		1	1
Germans.....	1	2	3
New Hebrides.....	1		1
Total.....	101	72	173

At the present time, the preparations used, as may be seen in the previous chart, are as follows:

- (1) HI—The mixed ethyl esters with iodine,
- (2) A—The ethyl ester of chaulmoogric acid,
- (3) D—The ethyl ester of dihydrochaulmoogric acid,
- (4) L—The ethyl ester of hydnocarpic acid,
- (5) M—The ethyl ester of undetermined acids (taraktogenic)
- (6) O—The ethyl oleate, and
- (7) 8—The mixed ethyl esters but without iodine.

These are each injected intramuscularly at the buttock every week at a dose depending upon the age and the idiosyncrasy of the individual. For an adult person, however, an initial dose of 1 cc. may be safely given, gradually increased according to the opinion and observation of the surgeon—up to about 5 cc. All the parolers and most of the inmates are treated with the formula HI, while the rest with the other preparations. Only one leper is receiving the ethyl oleate, since the boy exhibited, on repeated occasions, very violent local and constitutional reactions following the administration of the chaulmoogric esters.

On Wednesdays the compounds are given to the in-patients and part of the parolers, for, the remaining parolers are injected on Sundays. The rest of the week is spent in routine-ward visits, treatment of complications, snipping for bacteriological examinations, fixing the records, and other administrative work. Instead of, or together with the injections of, the compounds, capsules of the fatty acids with 2.5 per cent iodine may also be, *per orem*, given to certain individuals.

The intramuscular administration of the esters is not always unaccompanied with local or constitutional reactions or both. The ethyl ester of taraktogenic acid has been observed to be most active locally but cannot be regarded superior in efficacy to the preparations HI or 8. Besides the local reaction consisting of those referable to local irritation, there may be immediate cough attacks supposed to be due to fatty embolism in the lungs, slight fever, accentuation of pimples, and apparent exacerbation of lesions, rarely abscess formation on the site of inoculation, etc. The accentuation or the actual numerical increase of the eruptions, usually observed during the first day following the intramuscular injection, may be hypothetically caused by the sudden release of the bacilli, because of the action of the active agent on the lesion, into the circulation, and thus are started their ravages at other vulnerable points in the system. In such cases, the injection is temporarily suspended or postponed until the exacerbation subsides.

D.—PRESENT STATUS

The experimental researches of Walker and the clinical work in the Kalihi Hospital with the use of chaulmoogra oil derivatives in the treatment of leprosy, altho of undoubtedly immense value, are still on the way for definite results. In other words, up to the present time no reliable conclusion can be safely offered relative to the specificity of the esters for all cases and in all stages of the disease.

For, altho an analysis of the following tables which are here reproduced from the official records thru the courtesy of the Director of Health, the Territory of Hawaii, seems to indicate, at first glance, a suggestion regarding the beneficial results of the compound, still the time is so short since the introduction of this modern treatment and the figures are not sufficient for a reliable statistical study, that one must be forced to reserve the opinion that leprosy cannot be cured by any other method or therapeutic agent outside the chaulmoogric esters. Moreover, the apparent exacerbations of the leprous lesion observed in Hawaii after a certain length of time following the discharge of parolers as definitely free from the infection, suggest the possibility of a difficult determination regarding an absolute cure by chemical treatment.

KALIHI HOSPITAL

July 1 to June 30.	On hand.	Admissions.	Total.	Parolers.	Parolers re-examined and found.	Sent to Kalaupapa.	Deaths.	On hand at close of year.
1911-1912.....	57	181	238	5	.....	90	7	106
1912-1913.....	106	72	178	9	.....	113	13	42
1913-1914.....	42	53	97	6	.....	67	5	19
1914-1915.....	19	68	87	6	.....	46	1	30
1915-1916.....	30	76	106	5	.....	55	2	44
1916-1917.....	44	52	96	5	1	32	3	55
1917-1918.....	55	84	139	9	3	87	6	35
1918-1919.....	85	115	150	19	2	60	6	64
1919-1920.....	64	102	166	31	4	.....	5	116
1920-1921.....	116	114	237	94	4	.....	5	132

NOTE.—The last shipment to Molaki took place in the Spring of 1919.

KALAUPAPA, MOLAKI LEPER SETTLEMENT

July 1 to June 30.	Beginning of year.	Admissions.	Total.	Parolers.	Deaths.	On hand.
1911-1912.....	595	91	686	.....	64	622
1912-1913.....	622	118	735	.....	(*) 75	666
1913-1914.....	683	67	750	5	62	688
1914-1915.....	666	49	715	14	66	629
1915-1916.....	638	57	695	.....	62	587
1916-1917.....	629	34	663	12	67	608
1917-1918.....	587	89	676	1	57	611
1918-1919.....	608	61	669	12	53	546
1919-1920.....	611	.....	611	15	50	481
1920-1921.....	546	.....	546	.....	.....	.....

* No record.

The difficulty of determining whether or not there is a state of absolute cure in leprosy may, for the present, be explained by the occasional persistence of the leprosy bacilli in the tissues even when they are dead. Walker (thru personal conversation) believes that the tubercle bacilli have been found in the tissues after all the clinical signs disappeared, and dead cultures injected on experimental animals have been found in the tissues on post-mortem histological examination. The same phenomenon may presumably occur with other acid-fast bacilli and not very unlikely the Hansen organism. The occasional unsuccessful attempt to cultivate the specific infective organism in even the appropriate media (which may greatly aid in the solution of the problem) and the fact that they are not, as other organisms, readily phagocitized, are contributory to the difficulty. Such being the case, it may be possible for the healing of a leprosy ulcer to show an improvement but may not mean a cure since the bacilli may be still in the underlying tissues.

The safest attitude, therefore, that we can hold or maintain is that, up to the present time, the chaulmoogric esters are, so far, the best of the chemical methods of treatment in leprosy. It can be safely assumed that they exert seemingly efficacious action in certain cases and in certain stages of the disease. Much are still to be known and studied regarding the chemistry, physiological action, and therapeutic properties of the esters presently established or found and of their possible modification, or of other substances in the chaulmoogra oil not yet extracted by our present chemical methods.

ESTABLISHMENT OF EMERGENCY CAMPS FOLLOWING GREAT DISASTERS

By PROCESO GABRIEL, M.D., P. H. S.

In the afternoon of January 17 of this year there occurred in the District of Tondo a fire which broke out on Calle Antonio Rivera; and because of the strong wind that was blowing at the time and to the fact that the great majority of the houses were of light material, the flames leaped over to Calle Dagupan, then over to Calle Tioco, and ended on Calle Velasquez. As a consequence of this disaster, 696 houses were burned down.

On the morning following the disaster, while we were assembled at the Rizal Primary School, Dr. F. Arenas, Medical Inspector of the District of Meisic, the Secretary of the Interior, the City Mayor, the Chief of Police, several Constabulary officers, and the writer, as Medical Officer of the Tondo District, the Governor-General arrived at ten o'clock. At his Excellency's suggestion and that of the Mayor, we were commissioned to select sites wherein to establish three emergency camps, the Governor-General promising to borrow temporarily from the military authorities the necessary campaign tents.

We selected the following sites: the vacant lot near the Rizal School building, another between the two parallel streets intersecting Calle Tioco, and lastly one on either side of Calle Velasquez. The tents were pitched on the burned area for lack of better sites.

At one o'clock in the afternoon of the 18th, the Mayor was furnishing us, thru the Department of Sanitation of the city the necessary laborers for cleaning the sites, especially those places where the tents were to be pitched. On our suggestion, temporary public midden-sheds were installed and they were utilized the same day. At half past two o'clock, 400 tents arrived and a few hours afterwards they were ready for occupancy. Their distribution was as follows:

Camp No. 1.—Tayuman	188
Camp No. 2.—Tioco	76
Camp No. 3.—Velasquez	136

At six o'clock the refugees were housed in these camps, after leaving the Primary School building in which they had spent the night before.

On the afternoon of the 17th, the city, the Red Cross, and other charitable organizations distributed food and clothing to the refugees. The quantities distributed daily were as follows:

RICE

	Sacks.		Sacks.
January 17	6	January 21	21
18	49	22	28
19	56	23	19
20	73	24	10

SALMON

	Cans.		Cans.
January 17	288	January 21	864
18	2,112	22	528
19	1,776	23	480
20	1,968	24	192

Each of the foregoing camps were in charge of a physician, one sanitary inspector, four to six assistant sanitary inspectors, and several laborers. The physicians applied anti-cholera vaccine to all the refugees, especially those living in tents and in the vicinity. In four days 2,968 persons were vaccinated, and these included practically all those who were living in tents and adjacent places. In order to vaccinate those who left the camp for work, it became necessary to work during Sunday. A thorough inspection of all the tents was made morning and afternoon daily, and for two weeks each tent was inspected for cleanliness and searched for the sick. By making these inspections twice daily, it was possible to keep the camp sites so clean as to do away practically with the fly-pest. Places becoming damp and dirty, because of the carelessness on the part of the persons living therein, were cleaned at once and covered with a thin layer of quicklime.

The tents were pitched in a straight line with a space of four meters between them so as to serve as passages in the camp. In these spaces or temporary streets, garbage cans were placed at intervals and the refugees were obliged to keep such receptacles always closed. Waste water from the kitchens was thrown at a considerable distance from the camp to prevent the collection of stagnant water. At the request of the Health Service, the Cold Storage of the Government distributed distilled water free, the Health Service loaning several water tanks in which to store it.

The emergency status of the camps was ended about the 5th of February. The Director of Health ordered that only one physician remain for the inspection of all the camps and the attendance of the sick. Happily not a case of communicable disease was registered. The emergency bags furnished by the military authorities were hardly used.

In order to maintain an emergency camp in a sanitary condition, there should be installed public closets for an effective disposal of waste and the prevention of the development of flies and the accumulation of other things which might constitute a nuisance; as stagnant water and refuse.

In April and June, 1921, the San Lazaro and Tondo fires broke out and 696 houses were burned. Then the military authorities, at the request of the local officials, put up 300 campaign tents in front of the San Lazaro Hospital and in the Tondo burnt district. As there was no cholera in the city and as the camp was established in one place only, the sanitation work was comparatively easy—daily inspection by the undersigned, anti-smallpox vaccination of children, supervision of sanitary in-

spectors for maintaining cleanliness and reporting to the physician in charge all cases of illness found among the refugees, establishment of public midden-sheds, and supply of artesian water from San Lazaro Hospital. The other refugees found lodging at the Bonifacio and Sta. Clara schools.

The personnel was then composed of the undersigned as physician in charge, one sanitary inspector, two assistant sanitary inspectors, and two laborers.

Fortunately, no disease of a dangerous, communicable nature developed. Outside of the help of the superior health authorities, the sanitary supervision of the zone was entirely under my charge.

On February 24, 1922, another fire occurred in this district on Calles Dandan, Francisco, Yangco, Herbosa, and Velasquez. A total of 436 houses was burned. The emergency camp was established in front of the Yangco School, anti-cholera vaccination was performed among the refugees, distilled water distributed, public midden-sheds were established, garbage receptacles put up, and the devastated area was cleaned of all debris.

During the whole week, six sanitary inspectors and four laborers were detailed on the work of keeping the zone in good sanitary condition. Not a single case of communicable disease was registered.



GENERAL STATISTICS

[Unless otherwise stated these statistics are for the month of April, 1922.]

ESTIMATED POPULATION OF THE CITY OF MANILA FOR 1922¹

BY NATIONALITIES

Nationality.	Population.
Americans.....	3,134
Filipinos.....	273,497
Spaniards.....	1,955
Other Europeans.....	1,126
Chinese.....	17,856
All others.....	2,186
Total.....	299,754

BY DISTRICTS

Health districts.	Population.
No. 1, Intramuros.....	36,856
No. 2, Meisic.....	102,673
No. 4, Sampaloc.....	48,651
No. 5, Tondo.....	79,477
No. 6, Paco.....	32,097
Total.....	299,754

¹ Estimated on the basis of last figures published by the Census Office.

METEOROLOGICAL REPORT FOR MANILA CENTRAL OBSERVATORY DEDUCED FROM HOURLY OBSERVATIONS, APRIL, 1922.

Date.	Pressure ¹ mean.	Temperature.					Relative humidity.					
		In shade. ²			Underground.		Mean.	Daily mean maximum.	Day.	Daily mean minimum.	Day.	
		Absolute maximum.	Day.	Absolute minimum.	Day.	0.50 m.						
						8 a. m. mean.						2 p. m. mean.
1-10.....	mm. 760.36	°C. 27.8	36.6	3	19.2	6	29.4	30.2	Per cent. 75.0	1	Per cent. 61.0	10
11-20.....	59.26	27.9	36.0	12	20.8	15	29.4	30.2	66.1	20	59.2	12
21-30.....	58.50	29.0	36.6	22	23.5	26	30.8	31.2	63.2	28	68.3	21
									72.4			21

BIRTHS REPORTED IN THE CITY OF MANILA

[Stillbirths not included]

Nationality.	Male.	Female.	Total.	Annual birth rate per 1,000.
Americans.....	3	2	5	19.42
Filipinos.....	429	437	866	38.55
Spaniards.....	1	4	5	31.14
Other Europeans.....		2	2	21.62
Chinese.....	16	13	29	12.77
All others.....	5	3	8	44.56
Total.....	454	461	915	37.16

BIRTHS, BY DISTRICTS

Health districts.	Legitimates.			Illegitimates.			Grand total.	Annual birth rate per 1,000.
	Male.	Female.	Total.	Male.	Female.	Total.		
No. 1, Intramuros.....	92	85	177	9	9	18	195	64.41
No. 2, Meisic.....	72	70	142	11	6	17	159	18.85
No. 4, Sampaloc.....	79	75	154	8	7	15	169	42.29
No. 5, Tondo.....	133	154	287	6	2	8	295	45.19
No. 6, Paco.....	44	49	93		4	4	97	36.79
Total.....	420	433	853	34	28	62	915	37.16

Number of births attended by physician, living, 219; stillbirths, 15.

Number of births attended by midwife, living, 76; stillbirths, 3

Number of births attended by family, living, 620; stillbirths, 24.

NUMBER OF DEATHS AND DEATH RATE PER 1,000 AMONG RESIDENTS, IN THE CITY OF MANILA, BY NATIONALITIES

[Stillbirths not included]

Nationality.	Male.	Female.	Total.	Annual death rate per 1,000.
Americans.....	2	1	3	11.65
Filipinos.....	329	272	601	26.75
Spaniards.....	3	1	4	24.91
Other Europeans.....				
Chinese.....	15	2	17	11.59
All others.....	3		3	16.71
Total and average.....	352	276	628	25.51

TOTAL DEATHS BY SOCIAL CONDITION, INCLUDING TRANSIENTS

Social condition.	Male.	Female.
Married.....	113	72
Divorced.....		
Widowed.....	32	53
Single.....	263	180
Conditions not stated.....	2	1
Total.....	410	306
Grand total.....	716	

Stillbirths.....	42
Number of deaths with medical attendance.....	354
Number of deaths without medical attendance.....	362

DEATHS BY AGES IN THE CITY OF MANILA

[Stillbirths not included]

Ages.	Residents.		Transients.		Total.
	Male.	Female.	Male.	Female.	
Under 30 days.....	33	20		1	54
30 days to under 1 year.....	80	64	3	8	155
1 year to under 2 years.....	29	17	1	6	53
2 years to 4 years.....	30	21			51
5 years to 9 years.....	6	6	3		15
10 years to 14 years.....	7	8		1	19
15 years to 19 years.....	17	15	6	2	40
20 years to 29 years.....	43	25	11	4	83
30 years to 39 years.....	28	18	10	5	61
40 years to 49 years.....	26	22	7	3	58
50 years to 59 years.....	23	17	4	1	45
60 years to 69 years.....	10	14	4		28
70 years to 79 years.....	11	12	1	2	26
80 years to 89 years.....	5	5		1	11
90 years to 99 years.....	2	11	1		14
100 years and over.....		1			1
Age not stated.....	2				2
Total.....	352	276	54	34	716

DEATHS AND DEATH RATE PER 1,000, BY DISTRICTS, INCLUDING TRANSIENTS

[Stillbirths not included]

Health districts.	Deaths.	Annual death rate per 1,000.
No. 1, Intramuros.....	113	37.33
No. 2, Melsic.....	121	14.35
No. 4, Sampaloc.....	95	23.77
No. 5, Tondo.....	321	49.17
No. 6, Paco.....	66	25.03
Total.....	716	29.08

III. Diseases of the nervous system and of the organs of special sense.

NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG RESIDENTS IN THE CITY OF MANILA—Continued

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
II. Diseases of the nervous system and of the organs of special sense—Cont.													
66. Paralysis without specified cause.			2	3									5
67. General paralysis of the insane.			1										1
68. Other forms of mental alienation.				1									1
71. Convulsions of infants (under 5 years of age).			1										1
III. Diseases of the circulatory system.													
78. Acute endocarditis.													4
79. Organic diseases of the heart.			1	3									4
80. Angina pectoris.			3	5									8
81. Diseases of the arteries, atheroma, aneurysm, etc.			1	1									2
IV. Diseases of the respiratory system.													
89. Acute bronchitis.			32	13					1				46
90. Chronic bronchitis.			10	3					1				14
91. Broncho-pneumonia.			36	29						1			66
92. Pneumonia.			7	3					1				11
93. Pleurisy.			3										3
94. Pulmonary congestion, pulmonary apoplexy.				1									1
96. Asthma.			1	1									2
98. Other diseases of the respiratory system (tuberculosis excepted).				1									1
V. Diseases of the digestive system.													
103. Other diseases of the stomach (cancer excepted).			1										1
104. Diarrhoea and enteritis (under 2 years).			11	8									19
105. Diarrhoea and enteritis (2 years and over).				2									2
107. Intestinal parasites.			1										1
108. Appendicitis and typhlitis.			2	1									3
109. Hernias, intestinal obstructions.			2						1				3
113. Cirrhosis of the liver.			1										1
114. Biliary calculi.										1			1
115. Other diseases of the liver.													1
117. Simple peritonitis (nonpuerperal).				1									1

VI. Nonvenereal diseases of the genito-urinary system and annexa.

119. Acute nephritis.....	2	4	6
120. Bright's disease.....	14	8	23
124. Diseases of the bladder.....	1	1	1

VII. The puerperal state.

135. Puerperal hemorrhage.....	1	1	1
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VIII. Diseases of the skin and of the cellular tissue.

142. Gangrene.....	1	1	1
143. Furuncle.....	2	2	2
144. Acute abscess.....	1	1	1

X. Malformations.

150. Congenital malformations (stillbirths not included):

(1) Hydrocephalus.....	1	1	1
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XI. Diseases of early infancy.

151. Congenital debility, icterus and sclerema:			3
(1) Premature birth (not stillborn).....	1	2	46
(2) Congenital debility.....	1	26	2
152. Other diseases peculiar to early infancy:			
(2) Other causes peculiar to early infancy.....		2	2

XII. Old age.

154. Senility.....	10	19	29
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XIII. Affections caused by external causes.

155. Suicide by poison.....	1	1	1
167. Burns (conflagration excepted).....		1	1
170. Traumatism by firearms.....		1	1
175. Traumatism by other crushing (vehicles, railways, landalides, etc.).....	1	1	1
181. Electricity (lightning excepted).....	1	1	1
183. Homicide by cutting or piercing instruments.....	2	4	6
186. Other external violence.....	1	1	1

XIV. Ill-defined diseases.

189. Cause of death not specified or ill-defined.....	3	2	5
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Total.....	2	1	329	272	3	1	15	2	3	628
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Grand total.....	3	601	4	17	3	628
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NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG TRANSIENTS IN THE CITY OF MANILA

[Stillbirths not included]

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
I. General diseases.													
1. Typhoid fever.....			3	5							1		9
4. Malaria.....													1
10. Influenza.....			6	1					1				7
20. Purulent infection and septicemia													1
24. Tetanus.....			2	1									3
27. Beriberi.....			1										1
27a. Beriberi infantile													
28. Tuberculosis of the lungs.....			2	3									5
29. Acute miliary tuberculosis.....			3	4					2				9
35. Disseminated tuberculosis.....			1										1
41. Cancer and other malignant tumors of the peritoneum, intestines, rectum.....				1					1				2
44. Cancer and other malignant tumors of the skin			1	1									2
45. Cancer and other malignant tumors of other or of organs not specified.			1										1
II. Diseases of the nervous system and of the organs of special sense.													
61. Simple meningitis:													
(1) Simple meningitis.....			1										1
(2) Cerebrospinal meningitis (undefined)				1									1
63. Other diseases of the spinal cord				1									1
64. Cerebral hemorrhage, apoplexy			2										2
69. Epilepsy.....			1										1
III. Diseases of the circulatory system.													
78. Acute endocarditis.....													1
79. Organic diseases of the heart.....			1	2									3
IV. Diseases of the respiratory system.													
89. Acute bronchitis.....													3
91. Broncho-pneumonia.....			2	3									4
92. Pneumonia.....			5	2									5

INFANT MORTALITY

Causes of death.	Under 24 hours.	24 hours to under 36 hours.	36 hours to under 48 hours.	48 hours to under 14 days.	14 days to under 1 year.	Total.
6. Measles.....					1	1
10. Influenza.....					1	1
14. Dysentery.....					1	1
18. Erysipelas.....					1	1
24. Tetanus.....				3		3
27a. Beriberi infantile.....				7	48	55
34. Tuberculosis of other organs.....				1	1	1
37. Syphilis.....					1	1
61. Simple meningitis:						
(1). Simple meningitis.....					5	5
(2). Cerebrospinal meningitis (un- defined).....					1	1
(3). Cerebrospinal fever.....					1	1
71. Convulsions of infants.....	1					1
89. Acute bronchitis.....					33	33
90. Chronic bronchitis.....					6	6
91. Broncho pneumonia.....					24	24
92. Pneumonia.....					1	1
93. Pleurisy.....					1	1
104. Diarrhoea and enteritis.....				1	18	19
109. Hernia, intestinal obstruction.....				1		1
143. Furuncle.....					1	1
150. Congenital malformations (stillbirths not included):						
(1). Hydrocephalus.....					1	1
151. Congenital debility, icterus, and scler- ema:						
(1). Premature birth (not stillborn).....	1	1		1		3
(2). Congenital debility.....	17	4		9	15	45
152. Other causes peculiar to early infancy:						
(2). Other causes peculiar to early infancy.....				2		2
Total.....	19	5		24	161	209

ANTI-PLAGUE CAMPAIGN IN THE CITY OF MANILA

Number of spring traps set.....	18,529
Number of rats caught with spring traps.....	3,398
Number of wire traps set.....	210
Number of rats caught by wire traps.....	0
Number and kind of baits (coconuts).....	18,739
Number of poison portions placed.....	22,575
Number of rats found poisoned.....	569
Number of rats killed by clubs and other weapons.....	577
Number of rats found dead from other causes.....	231
Total number of rats otherwise caught, found dead or killed.....	4,775
Total number of rats sent to laboratory for examination.....	4,775
Total number of rats found positive for plague.....	0

DEATHS.

Total cases reported within the month.....	244
Provincial cases reported in the city of Manila.....	45
Foreign cases reported in the city of Manila.....	1
City cases reported (residents only).....	198
Total deaths reported within the month.....	46
Deaths among provincial cases reported in Manila.....	9
Deaths among foreign cases reported in Manila.....	0
Deaths among city cases.....	37
Total cases confirmed as typhoid fever.....	217
Widal reaction.....	11
Feces.....	0
Blood culture.....	0
Autopsy.....	0
Clinically positive.....	206
Cases confirmed as paratyphoid fever.....	4
Cases not confirmed.....	23

¹ All are included in the above table.

**DYSENTERIES REPORTED DURING THE MONTH OF APRIL, 1922, CITY OF
MANILA, RESIDENTS ONLY**

CASES.

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Living:											
Male	1	0	1	0	0	0	2	0	0	0	4
Female	0	0	0	0	0	0	1	1	0	0	2
Dead:											
Male	0	0	1	0	0	0	0	0	0	0	1
Female	0	0	0	0	0	1	0	0	0	1	2
Total:											
Male	1	0	2	0	0	0	2	0	0	0	5
Female	0	0	0	0	0	1	1	1	0	1	4
Grand total..	1	0	2	0	0	1	3	1	0	1	9

DEATHS.

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Male	0	0	1	0	0	0	0	0	0	0	1
Female.....	0	0	0	0	0	1	0	0	0	1	2
Total.....	0	0	1	0	0	1	0	0	0	1	3

Total cases reported within the month.....	12
Provincial cases reported in the city of Manila.....	3
City cases reported (residents only).....	9
Total deaths reported within the month.....	3
Deaths among provincial cases reported in the city of Manila.....	0
Deaths among city cases.....	3
Reported as:	
Amoebic dysentery.....	0
Acute dysentery.....	0
Bacillary dysentery.....	4
Chronic dysentery.....	0
Erroneously reported as dysentery.....	0
Dysentery	8
Total	12
Dysentery carriers.....	None.

**CONFIRMED CHOLERA CASES REPORTED DURING THE MONTH OF APRIL,
1922, CITY OF MANILA, RESIDENTS ONLY
CASES.**

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Living:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	1	0	0	0	0	1
Total:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	1	0	0	0	0	1
Grand total..	0	0	0	0	0	1	0	0	0	0	1

DEATHS.

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	1	0	0	0	0	1
Total.....	0	0	0	0	0	1	0	0	0	0	1

Total cases reported within the month.....	3
Provincial cases reported in the city of Manila.....	1
Foreign cases reported in the city of Manila.....	0
City cases (residents only).....	2
City cases confirmed as cholera.....	1
City cases not confirmed (found negative).....	1
Total deaths reported within the month.....	2
Deaths among provincial cases reported in Manila (not confirmed).....	1
Deaths among foreign cases reported in the city of Manila.....	0
Deaths among city cases.....	1
City deaths confirmed as cholera.....	1
City deaths not confirmed.....	0
Cholera carriers—3 living ; 8 Dead bodies.	

**DIPHtheria REPORTED IN THE CITY OF MANILA, DURING THE MONTH OF
APRIL, 1922, RESIDENTS ONLY**

CASES.

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	
Living:											
Male.....	1	0	2	0	1	0	0	0	0	0	4
Female.....	0	0	1	0	0	0	0	0	0	0	1
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total:											
Male.....	1	0	2	0	1	0	0	0	0	0	4
Female.....	0	0	1	0	0	0	0	0	0	0	1
Grand total..	1	0	3	0	1	0	0	0	0	0	5

DEATHS.

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	
Male.....	0	0	1	0	0	0	0	0	0	0	1
Female.....	1	0	0	0	0	0	0	0	0	0	1
Total.....	1	0	1	0	0	0	0	0	0	0	2

Total cases reported within the month.....	7
Provincial cases reported in Manila.....	2
City cases reported (residents only).....	5
City cases confirmed as diphtheria.....	2
City cases not confirmed.....	3
Total deaths reported within the month.....	2
City deaths confirmed as diphtheria.....	2
City deaths not confirmed.....	0
Deaths among provincial cases reported in Manila.....	0
Diphtheria carriers.....	None.

**OTHER COMMUNICABLE DISEASES REPORTED IN THE CITY OF MANILA, DURING
THE MONTH OF APRIL, 1922, RESIDENTS ONLY**

Diseases.	Cases.	Deaths.
Malaria.....	19	4
Variceloid.....	0	0
Varicella.....	53	0
Smallpox.....	0	0
Measles.....	18	2
Whooping cough.....	2	1
Influenza.....	29	2
Beriberi.....	7	6
Beriberi, infantile.....	50	50
Pulmonary tuberculosis.....	133	118
Tuberculosis of other organs.....	16	18

PROVINCIAL CASES AND DEATHS REPORTED IN THE CITY OF MANILA NOT INCLUDED IN THE ABOVE TABLE

Diseases.	Cases.	Deaths.
Malaria	1	1
Varioloid	0	0
Varicella	3	0
Smallpox	0	0
Measles	5	0
Whooping cough	0	0
Influenza	9	7
Beriberi	1	2
Beriberi, infantile	5	5
Pulmonary tuberculosis	3	9
Tuberculosis of other organs	5	3

REPORT ON THE DISTRIBUTION OF ASSORTED SERA AND VACCINES

Sera and vaccines.	On hand April 1, 1922.	Received during the month.	Total to be accounted for.	Distrib- uted during the month.	Remain- ing at the end of the month.
Anti-diphtheric serum (units)	220,000		220,000	60,000	160,000
Anti-dysenteric serum (ampoules)	18	80	98	80	18
Anti-tetanic serum (units)		340,000	340,000	340,000	
Cholera vaccine (c.c.)	400		400	10	390
Dried vaccine virus (units)	6,000	16,750	22,750	18,250	4,500
Fresh vaccine virus (units)	96,600	300,000	396,600	278,600	118,000
Gonococcus vaccine (ampoules)		150	150	150	
Mixed typhoid and cholera vaccine (c.c.)	5,110	113,895	119,005	91,565	27,440
Normal horse serum (ampoules)		50	50	50	
Typhoid and paratyphoid vaccine (am- poules)	600	3,750	4,350	3,640	710

SMALLPOX VACCINATIONS IN THE CITY OF MANILA, DURING THE MONTH OF APRIL, 1922

Health districts.	Total vaccina- tions.	Total inspec- tions.	Positive.	Negative.
No. 1, Intramuros	422	182	165	17
No. 2, Meisic	1,244	390	294	96
No. 4, Sampaloc	1,200	234	211	23
No. 5, Tondo	843	380	323	57
No. 6, Paco	2,261	179	154	25
Total	5,970	1,365	1,147	218

CONSOLIDATED CHOLERA VACCINATIONS FOR THE MONTH OF APRIL IN THE CITY OF MANILA

Districts.	Number of persons vaccinated.								Total.
	Males.				Females.				
	Double injections.		Single injections.		Double injections.		Single injections.		
	A.	C.	A.	C.	A.	C.	A.	C.	
No. 1, Intramuros.....	1,349	172	1,937	395	564	193	1,491	559	6,660
No. 2, Meisic.....	2,026	113	2,438	247	1,397	116	1,180	289	7,806
No. 4, Sampaloc.....	44	32	747	346	33	46	508	328	2,084
No. 5, Tondo.....	230	189	1,231	825	303	174	1,322	913	5,187
No. 6, Paco.....	720	593	858	1,185	575	491	1,140	1,177	6,739
Total.....	4,369	1,099	7,211	2,998	2,872	1,020	5,641	3,266	28,476

NOTE.—A, means adults; C, children.

**CONSOLIDATED TYPHOID VACCINATIONS FOR THE MONTH OF APRIL IN THE
CITY OF MANILA**

Districts.	Number of persons vaccinated.				Total.
	Males.		Females.		
	Adults.	Children.	Adults.	Children.	
No. 1, Intramuros.....	3,299	567	2,058	753	6,677
No. 2, Meisic.....	4,465	365	2,579	405	7,814
No. 4, Sampaloc.....	1,302	480	855	467	3,104
No. 5, Tondo.....	1,461	1,014	1,625	1,087	5,187
No. 6, Paco.....	1,629	1,883	1,832	1,816	7,160
Total.....	12,156	4,309	8,949	4,528	29,942

TOTAL VACCINATIONS OF SMALLPOX IN THE PROVINCES FOR THE YEAR 1922 :

Provinces.	Vaccinations.	Inspections.	Positive.	Negative.
Abra.....	33,650	30,149	19,795	10,354
Agusan.....	2,129	1,290	640	650
Albay.....	32,900	29,696	19,563	10,133
Antique.....	4,364	4,135	2,947	1,188
Bataan.....	5,973	5,839	4,629	1,210
Batangas.....	20,914	9,833	7,290	2,543
Bohol.....	16,528	12,911	8,026	4,885
Bulacan.....	17,998	11,618	8,659	2,959
Cagayan.....	7,087	4,173	2,126	2,047
Camarines Norte.....	644	604	392	212
Camarines Sur.....	15,580	11,844	8,460	3,384
Capiz.....	13,394	12,324	9,420	2,904
Catanduanes.....	30,947	22,645	14,840	7,805
Cavite.....	7,777	7,757	5,459	2,298
Cebu.....	57,455	37,252	20,491	16,761
Cotabato.....	6,028	2,990	556	2,434
Culion Leper Colony.....	137	137	69	68
Davao.....	2,457	2,272	1,517	755
Ilocos Norte.....	8,464	7,229	3,186	4,043
Ilocos Sur.....	12,859	8,775	5,578	3,197
Iloilo.....	31,909	19,703	14,986	4,717
Isabela.....	3,604	2,764	1,000	1,764
Laguna.....	8,037	5,718	3,849	1,869
La Union.....	7,110	5,631	2,527	3,104
Lanao.....	629	488	332	156
Leyte.....	35,611	18,246	13,441	4,805
Marinduque.....	5,706	4,203	2,676	1,527
Masbate.....	3,517			
Mindoro.....	6,260	4,769	2,940	1,829
Misamis.....	2,281	1,282	809	473
Mountain Province.....	5,276	3,304	2,311	993
Nueva Ecija.....	74,954	48,949	28,556	20,393
Nueva Vizcaya.....	1,378	1,327	1,036	291
Occidental Negros.....	6,229	5,070	3,465	1,605
Oriental Negros.....	16,313	8,250	5,551	2,699
Palawan.....	500	490	248	242
Pampanga.....	7,475	4,334	3,240	1,094
Pangasinan.....	59,930	49,991	24,485	25,506
Rizal.....	18,054	14,734	9,328	5,406
Romblon.....	5,633	4,045	2,745	1,300
Samar.....	7,999	4,908	2,735	2,173
Sulu.....	672	589	221	368
Surigao.....	3,151	2,851	1,543	1,308
Tarlac.....	3,438	3,066	2,138	928
Tayabas.....	11,734	9,939	6,665	3,274
Zambales.....	2,803	2,657	2,047	610
Zamboanga.....	2,609	2,096	1,277	819
Total.....	630,097	452,877	283,794	169,083

¹ Compilation of reports received. Other reports not yet received.

**CONSOLIDATED CHOLERA VACCINATIONS REPORTED IN THE PROVINCES SINCE
JANUARY, 1922¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Abra.....	282	1,153	1,435
Albay.....	11,885	6,720	18,605
Antique.....	2,584	1,989	4,573
Bataan.....	776	417	1,193
Bohol.....	1,189	979	2,168
Bulacan.....	6,400	4,364	10,764
Cagayan.....	4,934	4,144	9,078
Camaringes Norte.....	507	66	573
Capiz.....	2,354	1,078	3,432
Catanduanes.....	654	430	1,084
Cavite.....	6,994	4,162	11,156
Cebu.....	3,562	1,694	5,256
Cotabato.....	412	110	522
Davao.....	19	18	37
Ilocos Norte.....	403	666	1,069
Ilocos Sur.....	3,736	2,722	6,458
Iloilo.....	972	1,178	2,150
Laguna.....	4,845	7,379	12,224
La Union.....	3,854	2,564	6,418
Leyte.....	1,075	544	1,619
Marinduque.....	530	328	858
Mindoro.....	1,354	565	1,919
Misamis.....	900	520	1,420
Nueva Ecija.....	1,438	1,444	2,882
Nueva Vizcaya.....	676	949	1,625
Oriental Negros.....	2,556	2,044	4,600
Pampanga.....	3,969	3,615	7,584
Pangasinan.....	4,810	3,615	8,425
Rizal.....	15,799	9,745	25,544
Romblon.....	514	103	617
Sorsogon.....	1,310	703	2,013
Sulu.....	913	159	1,072
Tarlac.....	528	304	832
Tayabas.....	1,839	318	2,157
Zambales.....	2,169	1,891	4,060
Zamboanga.....	1,230	1,121	2,351
Total.....	97,962	69,801	167,763

¹ Compilation of reports received. Other reports not yet received.

**CONSOLIDATED TYPHOID VACCINATIONS REPORTED IN THE PROVINCES SINCE
JANUARY, 1922¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Cavite.....	36	11	47
Davao.....	3	.....	3
Ilocos Sur.....	1,002	851	1,853
Laguna.....	2,885	2,115	5,000
La Union.....	408	110	518
Total.....	4,334	3,087	7,421

¹ Compilation of reports received. Other reports not yet received.

**CONSOLIDATED ANTITYPHOID AND ANTICHOLERA VACCINATIONS REPORTED
IN THE PROVINCES SINCE JANUARY, 1922¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Abra.....	202	80	282
Cavite.....	24	13	37
Davao.....	311	113	424
Ilocos Norte.....	663	659	1,322
Ilocos Sur.....	3,732	1,631	5,363
Iloilo.....	2,160	879	3,039
Isabela.....	197	70	267
La Union.....	2,640	1,210	3,850
Pampanga.....	2,926	1,554	4,480
Tayabas.....	1,799	.....	1,799
Total.....	14,654	6,209	20,863

¹ Compilation of reports received. Other reports not yet received.

SMALLPÓX REPORTED FROM THE PROVINCES, FOR THE MONTH OF APRIL, 1922

(No case; no death reported during the month)

**CHOLERA REPORTED FROM THE PROVINCES, RECEIVED DURING THE
MONTH OF APRIL, 1922**

Provinces and towns.	Cases.	Deaths.
Bulacan:		
Paombong.....	4	2
Mindoro:		
Naujan.....	1
Rizal:		
San Juan del Monte.....	1	1
Total.....	6	3

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THE GOVERNMENT OF THE PHILIPPINE ISLANDS
DEPARTMENT OF PUBLIC INSTRUCTION

MONTHLY BULLETIN
OF THE
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No. 5

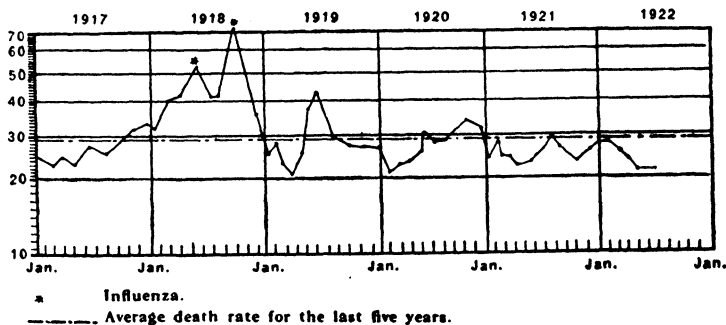
The keystone of a nation's progress is sanitation and education



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ANNUAL DEATH RATES BY MONTH, CITY OF MANILA



MANILA
BUREAU OF PRINTING
1922

COMMITTEE ON THE MONTHLY BULLETIN, P. H. S.

S. V. DEL ROSARIO, *Assistant Director of Health, Chairman*
J. P. BANTUG, *Senior Medical Inspector, P. H. S., Member*
L. LOPEZ RIZAL, *Senior Medical Inspector, P. H. S., Member*
M. V. ARGUELLES, *Senior Surgeon, P. H. S., Secretary*

ADOPTA UNA ALIMENTACIÓN VARIADA

1. Se llama **alimentación variada** a la que contenga los principios alimenticios (proteína, grasas, carbohidratos, sales minerales y vitaminas) en las proporciones debidas.

2. Evite una alimentación exclusiva, o sea una alimentación que contenga un exceso de un determinado *principio alimenticio* y muy poco o nada de los restantes. Las personas de buena posición muestran tendencia a una alimentación rica en proteínas, al paso que la clase pobre suele ser dada a un exceso de carbohidratos.

3. Una alimentación variada debe contener los siguientes principios alimenticios:

(a) Proteínas, para el desarrollo y para reparar el desgaste de los tejidos.

(b) Carbohidratos y grasas, para la producción de energía.

(c) Sales minerales, para la formación del tejido óseo, así como para mantener la alcalinidad de la sangre.

(d) Vitaminas, para mantener un metabolismo normal. Metabolismo, significa la transformación de los alimentos en sustancias asimilables.

4. Los orígenes de los diferentes principios alimenticios son los siguientes:

(a) Las proteínas: De las carnes, pescado, aves, huevos, leche, guisantes, judías, queso, cacahuete (maní), pili, mongo, etc.).

(b) Los carbohidratos: De los cereales, tubérculos (patata, gabe, camote, ube), azúcares, frutas (plátanos, mangas, ates, etc.).

(c) Las grasas: De la manteca, aceites, gordura de la carne, del aceite de nueces, y semillas (cacahuete o maní, casuy, y pili).

(d) Sales minerales: De la leche, las frutas jugosas, legumbres verdes, ensaladas, sal común, etc.

(e) Las vitaminas: Abundan en las simientes, la capa externa del grano de arroz, leche, mantequilla, queso, la yema del huevo, hígado, riñones, verduras, etc.

5. El uso prolongado de una alimentación monótona (no variada) puede dar lugar a una de las siguientes enfermedades:

(a) Al *escorbuto*, que se debe al consumo prolongado de alimentos en conserva y cereales, y a la falta de frutas y verduras frescas.

(b) Al *beriberi*, que es consecuencia de una alimentación no variada consistente principalmente en arroz muy pulimentado.

(c) Al *raquitismo* y *marasmo*, que sobrevienen a causa de un exceso de alimentación amilácea y de falta de alimentos de origen animal y de materia mineral.

(d) Al *acné* o al *eczema*, que se originan de una alimentación con un exceso de carbohidratos y de grasa.

(e) Al *estreñimiento habitual*, que sobreviene a consecuencia del consumo de alimentos muy digeribles, y que contienen muy escaso residuo constituido por la celulosa.

6. (a) Use arroz no pulimentado (pinawa) en lugar del arroz muy pulimentado; coma carne fresca, verduras o frutas frescas, leche, huevos y mungo con objeto de evitar el *beriberi*.

(b) El mezclar en la alimentación jugo de naranjas, verduras y frutas frescas, evita y cura el *escorbuto*.

(c) La leche humana, la leche fresca de vaca, frutas frescas y el jugo de naranja evitan el *raquitismo*.

7. La cantidad de alimentos necesaria para mantener el vigor del organismo, es variable según el clima, la estación, la ocupación, el ejercicio, el estado de salud, la edad, el sexo y el peso del cuerpo.

Ejemplos: Un obrero necesita más carbohidratos y grasas que un *clerk*. Los inválidos deben adoptar una alimentación nutritiva, pero que sea al mismo tiempo de fácil digestión.

8. Los niños, lo mismo que los adultos, deben beber bastante agua entre las comidas.

9. Evite las bebidas alcohólicas y no tome con exceso café o té.

10. La regularidad en las comidas y una completa masticación de los alimentos son auxiliares indispensables para una alimentación adecuada al objeto de obtener una perfecta salud, desarrollo normal y un grado de vigor necesario al organismo.

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**OBSERVATIONS ON SOME REMEDIES TRIED IN
TREATING CHOLERA CARRIERS**

By M. V. ARGUELLES, M.D., *Philippine Health Service*

The importance of devising a successful treatment or sterilization of cholera-carriers is self-evident. Their presence in a community always constitutes a public danger from which epidemics may arise. In times of epidemics, they have to be isolated from the mass of the people, a necessity which entails a tremendous expense on account of their usually large number.

Treatment of carriers has been attempted in various parts. *Cholecystectomy* and *cholecystostomy* of typhoid cases have been tried, but the carrier state persisted with the unpleasant result in some cases of distention of the gall duct in the cholecystectomy cases. Vaccine therapy in typhoid carriers has proved to be ineffective. One case of cholecystostomy was given large doses of charcoal several hours before operation; on the operating-table, some charcoal was found in the gall bladder. This case offers a possibility of introducing some vibriocidal agent into the gall bladder. Several drugs were tried in experimental guinea-pig cholera-carriers in which it was concluded that the drug treatment of cholera-carriers is not entirely hopeless. Milk injections have proved effective in the treatment of typhoid carriers as reported by Herz in Germany.

In the light of the foregoing experiences, the following methods have been tried in the treatment of the carriers discovered during the cholera epidemic of December, 1921, January and February, 1922.

Chemical treatments.—(1) Drugs increasing the acidity of the gastrointestinal contents. Aromatic sulphuric acid, U. S. P., given 15 to 20 drops in water three times daily, was used in one series. Buttermilk was given in another with the object of increasing lactic acid production. A mixture of equal parts of salol and urotropin (0.30) given three times daily has been used as a routine treatment in San Lazaro Hospital, before these experiments were undertaken. Consequently, the many cases that were subjected to the various treatments have also been receiving the salol-urotropin mixture. Four daily successive negatives were required before a carrier was discharged.

	No. of cases.	Average days till discharge.
Salol urotropin and aromatic sulphuric.....	22	14.5
Aromatic sulphuric alone.....	4	5.25

(2) Buttermilk was given *ad libitum* and at any time the carrier wanted.

	No. of cases.	Average days till discharge.
Salol urotropin and buttermilk.....	18	13.06
Buttermilk alone.....	2	5.50

(3) A formula used in the Philippine General Hospital, which is considered a powerful intestinal antiseptic and is used in typhoid cases, was also tried. It acts as a bactericide because of the nascent chlorine it generates. The formula is:

Potassium chlorate.....	2.00
Hydrochloric acid.....	4.00
Syrup, limonis.....	150.00
Water	360.00

M. & Sig.—One tablespoonful three times daily.

	No. of cases.	Average days till discharge.
Salol urotropin and chlorate formula.....	17	16.47
Chlorate formula alone.....	7	7.28

(4) The mixture of salol urotropin. Salol is widely known as an intestinal antiseptic. Urotropin is eliminated in part through the gall bladder, and hence its possible action in the vibrios that may be lodged therein. When these experiments were begun, the salol urotropin was discontinued in the majority of the cases and an inert placebo (lactose) was given, so that the action of the salol and urotropin might cease and other drugs might subsequently be given.

	No. of cases.	Average days till discharge.
Salol urotropin and placebo.....	32	16.75
Salol urotropin alone.....	23	16.65

(5) Methylene blue was administered in 0.10 capsules given every hour till 10 to 15 had been taken. Three hours after the last capsule, 0.10 calomel was given every six hours till 4 capsules had been given. Twelve cases received one series of this treatment; five received two series. Of the former two women complained of dizziness soon after the last dose of methylene blue had been given.

	No. of cases.	Average days till discharge.
Salol urotropin and methylene blue (once).....	5	10.20
Salol urotropin (twice) and methylene blue.....	5	10.60
Methylene blue (once).....	7	4.57

Milk injection.—Fresh cow's milk was obtained from one of the local dairies. It was sterilized in an Arnold sterilizer for three successive days and tested for sterility. Injection ranged from 5 to 10 cubic centimeters intragluteally. Five carriers were selected whose physical condition was considered normal, their ages being between 12 and 30 years. In two cases, a chilly sensation was felt about three hours after the injection. In all

five cases there was no rise of temperature above 37° C. Herz in his report on the typhoid carriers considered the rise of temperature essential for an effective action on the cholera state.

	No. of cases.	Average days till discharge.
Milk injection alone.....	5	5

Control cases.—When these experiments were begun, new carriers were then decreasing so that we are presenting here only seven cases that came who did not receive any salol-urotropin mixture before. The average duration has been six days. This is one of the observations still unexplained. One theory was advanced that when these experiments were begun, the high peak of the epidemic had already been passed and that the epidemic was already on the wane.

In this connection, there are hereby presented curves of the relative incidence of negatives and positives day by day during the period covered between the admission of these carriers under our management to their discharge, from January 9 to February 6.

SUMMARY OF RESULTS

	No. of cases.	Average days till discharge.
Aromatic sulphuric acid and salol-urotropin mixture.....	22	14.5
Aromatic sulphuric alone.....	4	5.25
Buttermilk and salol-urotropin.....	18	13.06
Buttermilk alone.....	2	5.50
Potassium chlorate formula and salol-urotropin.....	17	16.47
Potassium chlorate formula alone.....	7	7.28
Methyl blue (one) and salol-urotropin.....	5	10.20
Methyl blue (twice) and salol-urotropin.....	5	12.60
Methyl blue alone (once).....	7	4.57
Milk injection.....	5	5.00
Salol urotropin and placebo.....	32	16.75
Salol urotropin alone.....	23	16.65
Control cases.....	6	6.00

Date.	Specimens.	Positive.	Per cent.	Negative.	Per cent.
January 9	5	0	0	5	100
10	8	3	37½	5	62½
11	17	11	647+	6	565+
12	28	1	4,347+	22	9,565+
13	24	16	65	8	33½
14	29	28	134+	3	81
15	27	11	47½	16	59
16	38	14	424	19	574+
17	38	27	712+	11	288+
18	41	13	561	28	488+
19	44	36	7,117	8	2,883
20	68	53	842+	10	158
21	65	55	847	10	153
22	70	60	858	10	142
23	80	28	35	52	75
24	92	78	859	14	141
25	93	60	655	33	344
26	95	13	1,368	82	8,632
27	76	19	334	57	6,667
28	80	33	4,125	47	5,875
29	73	0	0	73	100
30	42	0	0	42	100
31	61	0	0	61	100
February 1	65	0	0	65	100
2	43	0	0	43	100
3	39	0	0	39	100
4	12	0	0	12	100
5	23	0	0	23	100
6	2	0	0	2	100

A SURVEY OF TROPICAL ULCERS IN NUEVA ECIJA PUBLIC SCHOOLS

TEOFILO CORPUS, M.D., *Medical Inspector, P. H. S.*

The object of this paper is to make a study particularly of the possible etiology, gross pathology, symptoms and diagnosis, and the appropriate treatments of tropical ulcers, both from the medical and surgical as well as the sanitary points of view.

SYNONYMS—Tropical phagedenic ulcer, Aden ulcer, Malabar ulcer.

ETIOLOGY AND BACTERIOLOGY

Tropical ulcers occur in cachectic individuals who have been impaired in health by privations and sanitary surroundings. Among school children who wear shoes, slippers, or wooden shoes, ulcer is not common. Among those bare-footed whose feet often get wet and soiled with mud, and especially with some forms of grass blight, they are common.

The possibility of contagion is also a factor that may be considered. Anyone may be inclined to believe that the disease is contagious, since it is common among school children who are in constant contact with each other—living in the same house or sitting side by side in the schoolroom. Outside of the schools and in some localities, it is found among adults and children living in nearby houses.

The question of flies, mosquitoes, bedbugs, and fleas, as intermediate factors in the spread of the disease may likewise be thought of.

It has been observed that the ulcers begin to appear in the month of May, and increase in the months of August, September, and October when the weather is damp. The decrease becomes noted in November and December when the weather begins to get dry.

As to why the ulcers exist in one place and not in another is a question which cannot be explained. In places where more of the school children wear shoes and their feet are not liable to constant wetting and soiling, the disease exists just the same. In other places where every condition is favorable, the disease does not exist.

Medical history tells us that Eggerts reported to have examined 2,874 specimens and found that 9.3 per cent were positive of one or more types. Eggerts' type "A" spirochete is thus described:

"A long tenacious organism which typically possesses from three to four complete regular convolutions of considerable amplitude. Is of an average thirteen microns long but varies considerably from this figure in both directions. As a rule, it takes a bluish stain with Giemsa's solution (stained 12 hours)."

Mendelson in 1919 reported 100 ulcers and claimed that 10 per cent showed spirochetes, all of Eggerts' "A" types. He is inclined to look on this organism, which corresponds to *Spiroschaudinna Schaudinni Prowazec*, 1917, as a superimposed infection on an ulceration. According to him, this spirochete is not limited to a disease of distinct clinical features; in

fact, it is to be found in a variety of diseases with great varieties in clinical features.

In our study of the ulcers, some forms of spirochetes were found supposed to be the exciting causes. Up to the time of this writing, a total of 59 specimens have been examined bacteriologically and 21, or 35.5 per cent, were positive of spirochetes. Four specimens were examined twice and found to be negative. Three specimens were examined negative during the second examination, which were positive in the first examination; the absence of the spirochetes in this latter case was probably due to the effect of the application of salvarsan given after the first examination. One specimen was positive in the second examination. In one case the ulcer was considered yaws, which was strongly positive of the spirochetes.

In almost all specimens, however, *streptococcus* and *staphylococcus* are encountered in considerable numbers, altho these are to a great extent of secondary infection only.

The laboratory method followed by us for the examination of the spirochete is as follows: With a bistoury, a little of the base of the ulcer is incised; and just as soon as the blood oozes, the edges of the incision are scraped off and the scrapings carefully placed on the slide. The preparation is stained with ordinary carbol-fuchsin diluted with ten times as much of distilled water for five to 10 seconds without heating.

The spirochetes are found slightly stained, and each spirochete is thin and delicate bearing three to five spiral similar to Eggerts' "A" types.

GROSS PATHOLOGY

The tropical ulcer spreads over the surface and involves all the tissues, even including bones.

An ulcer will begin from a mere scratch or from an itch. The site of predilection is the anterior and posterior portions of the legs and the dorsal part of the feet or the ankle—the anterior portion of the leg seeming to be the most common site. The upper extremities are very rarely affected. One lower extremity is only generally affected, but it is not uncommon to find multiple ulcers in both lower extremities, altho not more than four ulcers have been found in one single individual.

The ulcers vary in size from a small pea to eight centimeters' diameter (the greatest dimension found in this locality being eight centimeters only). Ulcers of enormous size may sometimes be found by the coalescence of several small ulcers.

The most neglected ulcers are blackish and pultaceous and contain disintegrated materials. Some are covered by thick, hard, elevated, and whitish pseudo-membranes. Some varieties are elevated or deeply depressed and in all cases the edges are undermined, smooth, or ragged. The floor of several ulcers is smooth; in others, ragged. In these latter types, they are hard with a consistency simulating warts. Generally, the ulcers are round or oval, but they may exhibit all varieties of shapes.

SYMPTOMS AND DIAGNOSIS

The ulcer does not seem to trouble the affected child. He goes about in the usual way. If he keeps the ulcer clean, he feels no pain, or the odor of the discharge annoy him. It is scratchy, however, and in many cases scratching increases the size of the ulcer. There is no particular feature about the diagnosis.

TREATMENT FROM THE MEDICAL AND SURGICAL, AND SANITARY POINTS OF VIEW

Three methods of treatment were tried by Halpin in 1918. In one method—when patients were treated with a saline injection—every case responded to this form of treatment. In the majority of cases the cure was very rapid and permanent; the old edematous tissue surrounding the edges of the ulcers disappeared rapidly and was replaced by healthy tissue, the discharge ceased, new healthy granulation tissue soon covered the ulcers, and healing resulted. The treatment was as follows: The ulcers were thoroughly curetted and wiped off with sterile 0.6 per cent sodium chloride solution, then a 20 cc. syringe filled with the same solution and the contents were injected beneath the ulcer, the needle entering just at the margin of the ulceration and going deep enough to prevent the solution from oozing thru. The ulcer was then covered with sterile gauze saturated with the same solution. These injections were given daily as long as the ulcer persisted.

"Heath found that the best results in the treatment of tropical ulcers, apart from surgical treatment, were obtained by the injections of salvarsan combined with potassium iodide by mouth. Patients do better in hospital. Externally, he uses moist dressing consisting of lint soaked in lysol solution (0.5 per cent) and covered with a piece of the young leaf of the banana; this makes an excellent protective covering, and it costs nothing and is easily obtained. When the sore is clean and granulating, a dusting powder is used. Salvarsan can be injected intramuscularly at the dispensaries or at the patient's home without any special apparatus and with practically no risk, tho, of course, with a certain amount of pain. Besides the marvelous quickness with which the sore heals, a striking feature is the apparent improvement in the general health and appearance of the patient."

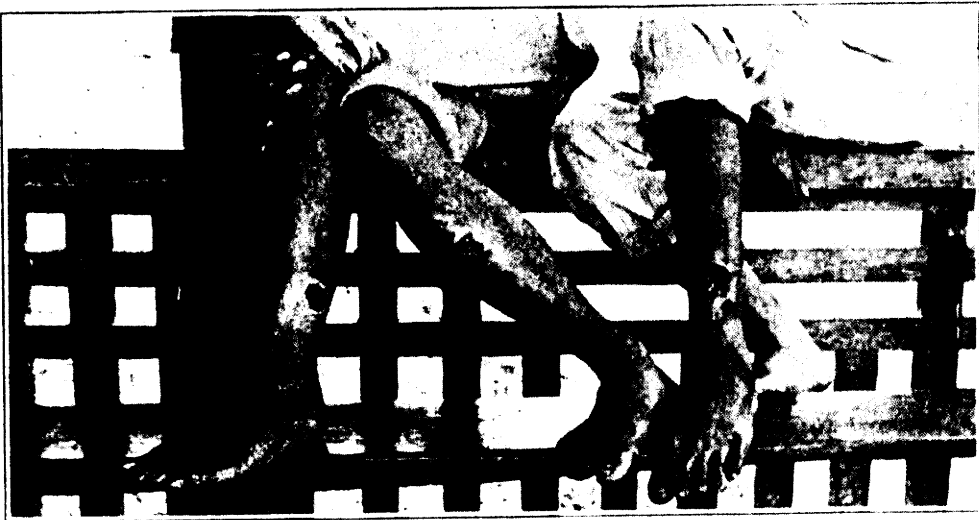
Surgically, Howard's method consists in scraping away all the sloughs and softened tissue with a Volkmanns' spoon. When a firm base of sound tissue has been obtained, the necrosed edge of skin is cut away with scissors curved on the flat so as to leave no pockets. Any ragged piece of fibrous tissue that remains in the base of the ulcer is then cut away with scissors. The surface is washed over with an antiseptic, and then dressed with cyanid gauze and some antiseptic wool, and firmly bandaged. The first dressing is done 48 hours after the operation.

We have treated a total of 598 cases of ulcers, 175 of which were females. A total of 410 were cured, 107 of which were females. A total of 188 were not cured. A greater number of cured cases occurred during the first four weeks; these were of the small non-resistant types. Likewise, many were cured during the ninth, tenth, and eleventh weeks; these were of the large and very resistant types described as being covered with thick, ragged, and hard pseudo-membranes. These types were from six to eight centimeters in diameter.

We have used a 3 per cent solution of salvarsan. A piece of cotton was wet with the solution and carefully placed over the ulcer and allowed to remain until the next day. When the ulcers showed healthy granulation, they were then washed with lysol solution and dusted with boric acid until they were cured. This was the most effective treatment used, because the granulation began to show up during the first or second day of treatment. The discharge also diminished wonderfully in one or two days, and the efficiency of salvarsan would perhaps account for this immediate effect.



GROUP A



GROUP B



GROUP C

TREATMENT WITH VINCENT'S POWDER

GROUP A.—Before treatment. Note black color, disintegrated tissues and discharge of big ulcer. Big ulcer is 8 cms. in diameter, and the other 7 cms. in longest diameter.

GROUP B.—After 16 days. Note decrease of size of ulcers, and appearance of marked granulation tissue.

GROUP C.—After 28 days. Note cured and improved ulcers.



Vincent's powder was the next effective drug used. Vincent's powder is composed of one part of sodium hypochlorite and nine parts of boric acid. The ulcer was washed with 1-4000 solution of potassium permanganate and dusted with Vincent's powder. The discharge was decreased and the granulation began to appear from the fourth to the sixth day. The ulcer was then washed with normal salt solution and unguentum zinc oxide applied until cured.

The method of washing the ulcer with 1-4000 of potassium permanganate solution and then applying unguentum of mercury seems to be rather a weak treatment.

The affected child shall not be allowed to come in contact with other children. In the school room he should be separated from the rest of the class, but must not be excluded. Clean homes and sanitary surroundings, clean clothing, frequent bathing, and fresh air are among the important factors in the hygienic treatment. The constant wearing of shoes will prevent the accumulation of dirt about the naked feet and legs. Carefully selected nourishment is a prime necessity to build up a strong constitution. In cachectic individuals, a tonic shall be administered. In those suffering from hookworm disease, an attempt shall be made to give thymol along-side with the ulcer treatment.

The following formula has been tried and found to be very valuable in the treatment of tropical ulcers and it is given here so that it may be submitted to further trial:

Cleanse ulcer hydrogen peroxide, then dry with cotton, paint the edges with iodine, when dry apply unguent of zinc oxide 90 per cent and ichthyol 10 per cent, then cover with cotton or gauze; repeat operation after two days. Healing expected in 15 days.

PAROLE OF LEPERS ¹

The Committee on Leprosy Investigation in Manila and the Committee of Treatment of the Culion Leper Colony having proved the curability of leprosy within a relatively short time, and taking into account the resolution approved by the Council of Hygiene in its regular session of October 13, 1921 and which was concurred in unanimously by the members of the Leprosy Investigation Committee in its regular session of the 11th instant, the Director of the Philippine Health Service, by virtue of the authority conferred on him by existing legislation, hereby issues the following orders:

First. All lepers who, after medical treatment, are declared negative during three consecutive clinical and bacteriological examinations, all to take place during the period of one and one-half month, shall be placed in quarantine.

Second. The quarantine shall last for at least six months from the date they were declared negative for the first time.

Third. Patients under quarantine, after completing the prescribed period of six months, in case no recurrence of the lesions were observed or when the bacteriological examination has not resulted positive during such periods as is hereby fixed above, shall be paroled on condition that they shall report to the Committee on Leprosy Treatment in Manila every Saturday from 10.00 to 12.00 in the morning, for the continuation of the treatment or the necessary examination during a period of 18 months; provided, however, that none of these patients shall receive any treatment for leprosy from any private physician.

Fourth. The presentation of these negatives may, in the discretion of the Committee, be excused during a period of 2 weeks once every three months.

Fifth. Those declared as negative, in accordance with Paragraph I of this regulation, who prefer to remain in the hospitals, shall be permitted to do so until the completion of the period of 18 months. These shall be permitted, however, to absent themselves from the hospital once in a while under conditions prescribed by the Chief of the Hospital.

Sixth. After two years' freedom, in accordance with previous regulations, the condition to liberty shall consist solely or reporting every 2 months for a period of one year to the sanitary official of the locality in which the interested party may hereafter reside.

Seventh. All negative lepers who are enjoying conditional freedom shall notify the Director of Health of their address and every time they change their residence.

Eighth. Each negative leper who is accorded the privileges specified in the present regulation, shall be provided with a certificate to be kept by him. This certificate shall show the necessary data for his personal identification, his address, continuation of treatment, the dates he has pre-

¹ Published in the Official Gazette on April 6, 1922.

sented himself to the Committee as well as the result of the clinical or bacteriological examination or both.

Ninth. In accordance with the above rule, the San Lazaro Hospital, the Culion Leper Colony, and the Central Office in Manila shall keep a register of all paroled patients in which it shall be shown the necessary data for the identification of each individual so paroled, his address, the dates in which he presented himself to the Committee, and the result of the clinical or bacteriological examinations of each.

Tenth. All rules and regulations referring to quarantine, approved May 17, 1915, are hereby revoked.

Eleventh. All the provisions of this regulation shall take effect upon the approval of the Department Secretary.

(Sgd.) V. JESUS,
Director of Health.

Approved, March 20, 1922:

(Sgd.) ALEJANDRO ALBERT,
Under Secretary of Public Instruction.

REGULATIONS FOR THE SALE OF LEPROSY DRUGS

On account of several requests for the sale of leprosy drugs, and upon the recommendation of the Leprosy Investigation Committee, leprosy drugs are hereby offered for sale by the Philippine Health Service at its Central Office subject to the following regulations:

1. Certain medicines used by the Philippine Health Service for the treatment of lepers are offered for sale to registered physicians in this and foreign countries.

2. The drugs to be placed on sale and the prices shall be, for the present and until changed by the Director, based upon actual cost and 25 per cent surcharge, as follows:

Medicine.	100 gram bottle.	15 liter demijohn not sterilized.	1 liter bottle not sterilized.	60 c. c. bottle sterilized
Chaulmoogra ethyl esters		P300.00	P21.00	P1.50
E. C. C. O		135.00	10.00	1.00
Sodium morrhuate	P3.00			
Sodium morrhuate, 3 per cent sol.		30.00	3.00	1.00
Sodium gynocardate, 3 per cent sol.	3.00			
Sodium gynocardate, 3 per cent sol.		30.00	3.00	1.00

3. The Chief, Office of Property, will keep at all times a stock of these drugs for sale if possible, but provision shall first be made for the requirements of the Government, and only the surplus above requirements shall be made available for public sale.

4. A separate account shall be kept of the proceeds of the sale of leprosy drugs, in order that the funds for the manufacture of the same may be properly reimbursed.

5. Physicians in the Philippine Islands who purchase leprosy drugs from the Health Service will be required to submit to the Director on the first of each month reports showing names of cases treated, type of disease, amount of medicine used, and results. Any physician who, in the opinion of the Director, fails to account properly for the medicine purchased will be denied the privilege of further purchase.

6. The following types of patients only may be treated by private physicians:

Suspect patients released from custody and patients suffering from the anaesthetic form of the disease who have been given certificate of discharge by the Committee on Leprosy Diagnosis or patients who have completed the two years quarantine regulation or paroled after two years following negative consecutive examinations by the Committee on Diagnosis.

(Sgd.) V. JESUS,
Director of Health.

Approved, July 17, 1922:

(Sgd.) E. A. GILMORE,
Secretary of Public Instruction.

GENERAL STATISTICS

[Unless otherwise stated these statistics are for the month of May, 1922]

ESTIMATED POPULATION OF THE CITY OF MANILA FOR 1922¹

BY NATIONALITIES

Nationality.	Population.
Americans	3,134
Filipinos	278,497
Spaniards	1,955
Other Europeans	1,126
Chinese	17,856
All others	2,188
Total	299,754

BY DISTRICTS

Health districts.	Population.
No. 1, Intramuros	36,856
No. 2, Meisic	102,673
No. 4, Sampaloc	48,651
No. 5, Tondo	79,477
No. 6, Paco	82,097
Total	299,754

¹ Estimated on the basis of last figures published by the Census Office.

METEOROLOGICAL REPORT FOR MANILA CENTRAL OBSERVATORY DEDUCED FROM HOURLY OBSERVATIONS, MAY, 1922

150

Date.	Pres- sure mean. ¹	Temperature.					Relative humidity.					
		In shade. ²				Underground.		Mean.	Daily mean maxi- mum.	Daily mean mini- mum.	Day.	Day.
		Mean.	Absolute maxi- mum.	Day.	Absolute mini- mum.	0.50 m.						
						8 a. m. mean.	2 p. m. mean.					
		°C.	°C.	°C.	°C.	°C.	°C.	Per cent.	Per cent.	Per cent.		
1-10.....	mm. 758.71	27.6	34.1	6	23.4	3	30.9	31.0	80.4	84.2	7	76.6
11-20.....	57.90	27.8	35.1	11	22.7	19	31.0	31.1	78.7	86.0	17	71.7
21-31.....	56.94	27.7	34.5	25	23.0	23	30.2	30.3	81.3	92.9	23	73.8
Date.	Prevail- ing di- rection.	Wind.			Atmidometer (open air). ³		Sunshine.		Rainfall.			
		Velocity.			Daily maxi- mum.	Day.	Total.	Daily maxi- mum.	Total.	Rainy days.		
		Total.	Daily total maxi- mum.	Day.								
1-10.....	E	Km. 1,456.0	Km. 201.0	6	mm. 35.8	6	h m 61-35	h m 8-25	mm. 35.7	6		
11-20.....	NE	1,387.0	167.0	19	36.3	20	71-45	9-55	38.1	5		
21-31.....	SE, E	2,459.0	426.5	23	36.3	25	76-55	10-20	171.9	5		

¹ Corrected for instrumental error and for temperature and reduced to sea level. Correction to standard gravity. -1.72 mm.
² These values are taken from instrument mounted in the Observatory Park, 1.5 meters above ground.

BIRTHS REPORTED IN THE CITY OF MANILA

[Stillbirths not included]

Nationality.	Male.	Female.	Total.	Annual birth rate per 1,000.
Americans.....	3	3	6	22.56
Filipinos.....	475	443	918	39.55
Spaniards.....	2	2	2	12.05
Other Europeans.....	5	7	12	125.66
Chinese.....	20	15	35	23.09
All others.....	1	2	3	16.17
Total.....	506	470	976	38.36

BIRTHS, BY DISTRICTS

Health districts.	Legitimates.			Illegitimates.			Grand total.	Annual birth rate per 1,000.
	Male.	Female.	Total.	Male.	Female.	Total.		
No. 1, Intramuros.....	88	86	174	5	5	10	184	58.82
No. 2, Meisic.....	50	61	111	4	6	10	121	13.89
No. 4, Sampaloc.....	81	62	143	7	8	15	158	38.26
No. 5, Tondo.....	200	176	376	12	11	23	399	59.15
No. 6, Paco.....	55	53	108	4	2	6	114	41.85
Total.....	474	438	912	32	32	64	976	38.36

Number of births attended by physician, living, 265; stillbirths, 16.

Number of births attended by midwife, living, 89; stillbirths, 0.

Number of births attended by family, living, 622; stillbirths, 16.

NUMBER OF DEATHS AND DEATH RATE PER 1,000 AMONG RESIDENTS IN THE CITY OF MANILA, BY NATIONALITIES

[Stillbirths not included]

Nationality.	Male.	Female.	Total.	Annual death rate per 1,000.
Americans.....	5	1	6	22.56
Filipinos.....	289	247	536	28.09
Spaniards.....	4	1	5	30.13
Other Europeans.....	28	2	30	19.80
Chinese.....	2	2	2	10.78
All others.....	2	2	2	10.78
Total and average.....	328	251	579	22.76

TOTAL DEATHS BY SOCIAL CONDITION, INCLUDING TRANSIENTS

Social condition.	Male.	Female.
Married.....	115	84
Divorced.....		1
Widowed.....	33	39
Single.....	248	166
Condition not stated.....	8	
Total.....	399	290
Grand total.....	689	

Stillbirths.....	34
Number of deaths with medical attendance.....	357
Number of deaths without medical attendance.....	332

DEATHS BY AGES IN THE CITY OF MANILA

[Stillbirths not included]

Ages.	Residents.		Transients.		Total.
	Male.	Female.	Male.	Female.	
Under 30 days.....	29	24			53
30 days to under 1 year.....	77	53	16	12	158
1 year to under 2 years.....	23	23	5	2	53
2 years to 4 years.....	17	14	2	2	35
5 years to 9 years.....	12	12	3	1	28
10 years to 14 years.....	7	4	2	1	14
15 years to 19 years.....	9	9	5	2	25
20 years to 29 years.....	27	18	9	9	63
30 years to 39 years.....	18	21	7	4	45
40 years to 49 years.....	40	18	5	1	64
50 years to 59 years.....	28	17	7	5	57
60 years to 69 years.....	21	15	6	1	43
70 years to 79 years.....	14	5			19
80 years to 89 years.....	4	9		1	14
90 years to 99 years.....	4	9			13
100 years and over.....	2		1		3
Age not stated.....	1				1
Total.....	328	251	68	41	688

One (1) filipino male of 30 years of age, permanent residence unknown, not included in this table.

DEATHS AND DEATH RATE PER 1,000, BY DISTRICTS, INCLUDING TRANSIENTS

[Stillbirths not included]

Health districts.	Deaths.	Annual death rate per 1,000.
No. 1, Intramuros.....	114	36.44
No. 2, Meisic.....	103	11.82
No. 4, Sampaloc.....	100	24.22
No. 5, Tondo.....	308	45.66
No. 6, Paco.....	64	23.49
Total.....	689	27.08

NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG RESIDENTS IN THE CITY OF MANILA

[Stillbirths not included]

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
1. Typhoid fever.....			13	10					4				27
4. Malaria.....			1	1									2
4a. Malarial cachexia.....			1										1
6. Measles.....			1										1
10. Influenza.....			3	1									2
13. Dysentery.....			2	2					2				6
14. Typhoid fever.....	1		2	2									7
17. Leprosy.....			1	1									2
18. Erysipelas.....			1	1									2
20. Purulent infection and septicæmia.....			2	1									2
22. Anthrax.....			1										1
24. Tetanus.....			3	2									2
27. Beriberi.....			3	2									5
27a. Beriberi infantile.....			23	2					1				3
28. Tuberculosis of the lungs.....			20	2					1				5
30. Tuberculous meningitis.....			59	56					8				44
31. Abdominal tuberculosis.....			1	1									2
34. Tuberculosis of other organs.....	1		2	2									3
35. Disseminated tuberculosis.....			1	2									4
36. Rickets.....			1	2									3
37. Syphilis.....			1	1									1
42. Cancer and other malignant tumors of the female genital organs.....			1										1
43. Cancer and other malignant tumors of the breast.....			1	1									1
45. Cancer and other malignant tumors of other organs or of organs not specified.....									1				2
47. Acute articular rheumatism.....			1										1
48. Chronic rheumatism and gout.....			1										1
50. Diabetes.....			2										2
54. Anæmia, chlorosis.....			1										1
56. Alcoholism (acute or chronic).....	1		1										2

II. Diseases of the nervous system and of the organs of special sense.

61. Simple meningitis:													
(1) Simple meningitis.....			9	7							1		17

NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG RESIDENTS IN THE CITY OF MANILA—Continued

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
II. Diseases of the nervous system and of the organs of special sense—Ctd.													
64. Cerebral hemorrhage, apoplexy.....			1	3	1					1			6
66. Paralysis without specified cause.....			1	1									2
67. General paralysis of the insane.....				1									1
71. Convulsions of infants (under 5 years of age).....			2	1									3
III. Diseases of the circulatory system.													
78. Acute endocarditis.....			1	2									3
79. Organic diseases of the heart.....	1		7	2					1		1		12
82. Embolism and thrombosis.....													3
84. Diseases of the lymphatic system (lymphangitis, etc.).....			1						1				12
IV. Diseases of the respiratory system.													
89. Acute bronchitis.....			15	10									26
90. Chronic bronchitis.....			12	5						1			17
91. Broncho-pneumonia.....			24	28						1			53
92. Pneumonia.....		1	8	2									11
95. Gangrene of the lungs.....			1								1		1
V. Diseases of the digestive system.													
103. Other diseases of the stomach (cancer excepted).....				2									2
104. Diarrhoea and enteritis (under 2 years).....			17	10	1								28
105. Diarrhoea and enteritis (2 years and over).....			5	2									7
107. Intestinal parasites.....			2	1									3
108. Appendicitis and typhilitis.....			2	1									3
109. Hernias, intestinal obstructions.....				1									1
110. Other diseases of the intestine.....			1	1									2
113. Cirrhosis of the liver.....			2	1									3
114. Biliary calculi.....				1									1
115. Other diseases of the liver.....	1			1									2
117. Simple peritonitis (nonpuerperal).....			1										1
VI. Nonvenereal diseases of the genito-urinary system and annera.													
119. Acute nephritis.....													1
120. Bright's disease.....			7	1						4			13

122. Other diseases of the kidneys and annexa.....	1				1					
123. Calculi of the urinary passages.....		1			1					
130. Other diseases of the uterus.....		1			1					
<i>VII. The puerperal state.</i>										
135. Puerperal hemorrhage.....					3					
137. Puerperal septicæmia.....		3			4					
		4								
<i>VIII. Diseases of the skin and of the cellular tissue.</i>										
143. Furuncle.....	1			1	2					
<i>IX. Diseases of the bones and of the organs of locomotion.</i>										
146. Diseases of the bones (tuberculosis excepted).....	1				1					
<i>X. Malformations.</i>										
150. Congenital malformations (stillbirths not included):										
(1) Congenital malformations of the heart.....			1		1					
<i>XI. Diseases of early infancy.</i>										
151. Congenital debility, icterus and sclerema:										
(1) Premature birth (not stillborn).....	3	3			7					
(2) Congenital debility.....	18	17		1	35					
152. Other diseases peculiar to early infancy:										
(1) Injuries at birth (not stillborn).....	1				1					
(2) Other causes peculiar to early infancy.....	2	2		1	5					
<i>XII. Old age.</i>										
154. Senility.....	9	15		1	25					
<i>XIII. Affections caused by external causes.</i>										
155. Suicide by poison.....										
169. Accidental drowning.....	1				1					
171. Traumatism by cutting or piercing instruments.....	5				5					
175. Traumatism by other crushing (vehicles, railways, landslides, etc.).....	1	1		1	3					
<i>XIV. Ill-defined diseases.</i>										
189. Cause of death not specified or ill defined.....		3	2		5					
Total.....	5	1	289	247	4	1	28	2	2	579
Grand total.....	6		536	5			30	2		579

NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG TRANSIENTS IN THE CITY OF MANILA

[Stillbirths not included]

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
<i>I. General diseases.</i>												
1. Typhoid fever.....												
4a. Malarial cachexia.....			2			5					2	
6. Measles.....						1					1	
10. Influenza.....						1					1	
14. Dysentery.....			1			1					2	
17. Leprosy.....			1								1	
27a. Beriberi, infantile.....											1	
28. Tuberculosis of the lungs.....			6			4					1	
30. Tuberculosis meningitis.....			10			4					1	
31. Abdominal tuberculosis.....			1								1	
39. Cancer and other malignant tumors of the buccal cavity.....			1								1	
41. Cancer and other malignant tumors of the peritoneum, intestines, rectum.....			2								1	
45. Cancer and other malignant tumors of other organs or of organs not specified.....			2			1					1	
<i>II. Diseases of the nervous system and of the organs of special sense.</i>												
61. Simple meningitis:												
(1) Simple meningitis.....			1			1						
66. Paralysis without specified cause.....			1									
69. Epilepsy.....			1									
71. Convulsions of infants (under 5 years of age).....			1									
<i>III. Diseases of the circulatory system.</i>												
78. Acute endocarditis.....						2						
79. Organic diseases of the heart.....			1						1			
82. Embolism and thrombosis.....			1									
<i>IV. Diseases of the respiratory system.</i>												
89. Acute bronchitis.....			1			2						
91. Broncho-pneumonia.....			10			3			1			
93. Pleurisy.....						1						
											Total.	
											Male.	Female.
											9	1
											1	1
											2	1
											10	10
											14	14
											1	1
											2	2
											1	1
											2	2
											3	3
											14	14
											1	1

V. Diseases of the digestive system.

103. Other diseases of the stomach (cancer excepted)	1	1	5	1
104. Diarrhoea and enteritis (under 2 years)	2	3	5	3
105. Diarrhoea and enteritis (2 years and over)	1	1	1	3
108. Appendicitis and typhilitis	2	1	1	1
115. Other diseases of the liver	1	1	1	2
117. Simple peritonitis (nonpuerperal)	2	2		

VI. Nonvenereal diseases of the genito-urinary system and annexa.

119. Acute nephritis	1	1	1	1
120. Bright's disease	1	2	1	4
131. Cysts and other tumors of the ovary	1	1	1	1

VII. The puerperal state.

138. Puerperal albuminuria and convulsions	1	1		1
--	---	---	--	---

VIII. Diseases of the skin and of the cellular tissue.

143. Furuncle	2			2
144. Acute abscess	1			1

XII. Old age.

154. Senility	1			1
---------------	---	--	--	---

XIII. Affections caused by external causes.

167. Burns (conflagration excepted)			1	1
169. Accidental drowning	1			1
175. Traumatism by other crushing (vehicles, railways, landslides, etc.)	3	1		4
184. Homicide by other means	1			1

XIV. Ill-defined diseases.

189. Cause of death not specified or ill defined	2	1		3
Total	62	40	4	109
Grand total	102		4	109

INFANT MORTALITY

(Stillbirths not included)

Causes of death.	Under 24 hours.	24 hours to under 36 hours.	36 hours to under 48 hours.	48 hours to under 14 days.	14 days to under 1 year.	Total.
6. Measles.....					2	2
10. Influenza.....					1	1
18. Erysipelas.....					2	2
24. Tetanus.....					1	1
27a. Beriberi infantile.....				3	1	4
28. Tuberculosis of the lungs.....				3	51	54
30. Tuberculous meningitis.....					1	1
34. Tuberculosis of other organs.....					1	1
61. Simple meningitis:					1	1
(1) Simple meningitis.....					10	10
71. Convulsions of infants.....					3	3
89. Acute bronchitis.....					18	18
90. Chronic bronchitis.....					9	9
91. Broncho-pneumonia.....				2	28	30
92. Pneumonia.....					1	1
103. Other diseases of the stomach (cancer excepted).....					1	1
104. Diarrhoea and enteritis.....					22	22
143. Furuncle.....					1	1
146. Diseases for the bones (tuberculosis excepted).....					1	1
150. Congenital malformations (stillbirths not included):						
(2) Congenital malformations of the heart.....	1					1
151. Congenital debility, icterus, and sclerema:						
(1) Premature birth (not still-born).....	5			1	1	7
(2) Congenital debility.....	9	1	1	13	11	35
152. Other causes peculiar to early infancy:						
(1) Injuries at birth (not still-born).....	1					1
(2) Other causes peculiar to early infancy.....	2			1	2	5
Total.....	18	1	1	23	168	211

ANTI-PLAGUE CAMPAIGN IN THE CITY OF MANILA

Number of spring traps set.....	15,762
Number of rats caught with spring traps.....	2,865
Number of wire traps set.....	148
Number of rats caught by wire traps.....	6
Number and kind of baits (coconuts).....	15,910
Number of poison portions placed.....	21,487
Number of rats found poisoned.....	755
Number of rats killed by clubs and other weapons.....	847
Number of rats found dead from other causes.....	297
Total number of rats otherwise caught, found dead or killed.....	4,770
Total number of rats sent to the laboratory for examination.....	4,770
Total number of rats found positive for plague.....	0

**TYPHOID AND PARATYPHOID FEVER REPORTED DURING THE MONTH OF
MAY, 1922, CITY OF MANILA, RESIDENTS ONLY**

CASES

Health districts.											
Reported.	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		Total.
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	9	0	12	3	10	0	20	4	7	1	66
Female.....	1	0	5	4	8	2	9	1	1	0	31
Dead:											
Male.....	2	0	3	0	0	0	0	2	0	1	8
Female.....	0	0	0	0	3	0	0	3	0	0	6
Total:											
Male.....	11	0	15	3	10	0	20	6	7	2	74
Female.....	1	0	5	4	11	2	9	4	1	0	37
Grand total..	12	0	20	7	21	2	29	10	8	2	111

DEATHS

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	3	0	4	0	4	0	1	2	2	1	17
Female.....	0	0	0	0	6	0	0	4	0	0	10
Total.....	3	0	4	0	10	0	1	6	2	1	27

Total cases reported within the month.....	149
Provincial cases reported in the City of Manila.....	80
Foreign cases reported in the City of Manila.....	0
City cases reported (residents only).....	119
Total deaths reported within the month.....	86
Deaths among provincial cases reported in Manila.....	9
Deaths among foreign cases reported in Manila.....	0
Deaths among city cases.....	27
Total cases confirmed as typhoid fever.....	133
Widal reaction.....	45
Feces.....	0
Blood culture.....	0
Autopsy.....	0
Clinically positive.....	88
Cases confirmed as paratyphoid fever (stool examination).....	5
Cases not confirmed.....	11
Paratyphoid fever.....	<div> City: 5 cases, 1 death.¹ Provincial, none. </div>

¹ All are included in the above table.

**DYSENTERIES REPORTED DURING THE MONTH OF MAY, 1922, CITY OF
MANILA, RESIDENTS ONLY**

CASES

Reported.		Health districts.										Total.
		No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
		Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:												
Male.....	0	0	1	0	0	1	0	0	0	0	0	2
Female.....	0	0	0	0	0	1	0	0	0	0	0	1
Dead:												
Male.....	1	0	2	0	0	0	1	0	0	0	0	4
Female.....	0	0	0	0	0	2	0	0	0	0	0	2
Total:												
Male.....	1	0	3	0	0	1	1	0	0	0	0	6
Female.....	0	0	0	0	0	3	0	0	0	0	0	3
Grand total..	1	0	3	0	0	4	1	0	0	0	0	9

DEATHS

		Health districts.										
		No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
Sex.		Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Total.
Male.....		1	0	2	0	0	0	1	0	0	0	4
Female.....		0	0	0	0	1	2	0	0	0	0	3
Total.....		1	0	2	0	1	2	1	0	0	0	7

Total cases reported within the month.....	10
Provincial cases reported in the City of Manila.....	1
City cases reported (residents only).....	9
Total deaths reported within the month.....	8
Deaths among provincial cases reported in Manila.....	1
Deaths among city cases.....	7
Reported as:	
Amoebic dysentery.....	2
Acute dysentery.....	0
Bacillary dysentery.....	2
Chronic dysentery.....	0
Dysentery	6
Erroneously reported as dysentery.....	0
Total	10

Dysentery carriers, none.

**CONFIRMED CHOLERA CASES REPORTED DURING THE MONTH OF MAY,
1922, CITY OF MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Grand total..	0	0	0	0	0	0	0	0	0	0	0

DEATHS

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total.....	0	0	0	0	0	0	0	0	0	0	0

Total cases reported within the month.....	4
Provincial cases reported in Manila (not confirmed).....	3
Foreign cases reported in the City of Manila.....	0
City cases reported (residents only).....	1
City cases confirmed as cholera.....	0
City cases not confirmed (found negative).....	1
Total deaths reported within the month.....	1
Deaths among provincial cases reported in Manila (not confirmed).....	0
Deaths among foreign cases reported in the City of Manila.....	0
City deaths confirmed as cholera.....	0
City deaths not confirmed.....	1

Cholera carriers: 5 living, 0 dead bodies.

**DIPHTHERIA REPORTED DURING THE MONTH OF MAY, 1922, CITY OF
MANILA, RESIDENTS ONLY**

CASES

Health districts.											
Reported.	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		Total.
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	0	0	0	0	0	0	1	0	0	0	1
Female.....	0	0	0	0	0	0	0	0	0	0	0
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total:											
Male.....	0	0	0	0	0	0	1	0	0	0	1
Female.....	0	0	0	0	0	0	0	0	0	0	0
Grand total..	0	0	0	0	0	0	1	0	0	0	1

DEATHS

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total.....	0	0	0	0	0	0	0	0	0	0	0

Total cases reported within the month.....	6
Provincial cases reported in the City of Manila.....	0
City cases reported (residents only).....	6
City cases confirmed as diphtheria.....	1
City cases not confirmed.....	5
Total deaths reported within the month.....	0
City deaths confirmed as diphtheria.....	0
City deaths not confirmed.....	0
Deaths among provincial cases reported in Manila.....	0
Diphtheria carriers, none.	

**OTHER COMMUNICABLE DISEASES REPORTED IN THE CITY OF MANILA
DURING THE MONTH OF MAY, 1922.**

RESIDENTS

Diseases.	Cases.	Deaths.
Malaria.....	20	3
Smallpox.....	0	0
Varioloid.....	0	0
Varicella.....	30	0
Measles.....	15	2
Whooping cough.....	0	0
Influenza.....	33	5
Beriberi.....	3	3
Beriberi, infantile.....	44	44
Pulmonary tuberculosis.....	158	124
Tuberculosis of other organs.....	12	12

OTHER COMMUNICABLE DISEASES REPORTED IN THE CITY OF MANILA—Continued
NON RESIDENTS

Diseases.	Cases.	Deaths.
Malaria	6	1
Smallpox	3	0
Varioloid	0	0
Varicella	3	0
Measles	5	1
Whooping cough	0	0
Influenza	3	2
Beriberi	0	0
Beriberi, infantile	10	10
Pulmonary tuberculosis	15	14
Tuberculosis of other organs	2	2

REPORT ON THE DISTRIBUTION OF ASSORTED SERA AND VACCINES

Sera and vaccines.	On hand May 1, 1922.	Received during the month.	Total to be accounted for.	Distributed during the month.	Remaining at the end of the month.
Anti-diphtheric serum (units)	160,000		160,000	160,000	
Anti-dysenteric serum (ampoules)	18		18	10	8
Anti-tetanic serum (units)		150,000	150,000	150,000	
Cholera vaccine (cc.)	390	1,050	1,440	930	510
Dried vaccine virus (units)	4,500	33,500	38,000	17,500	20,500
Fresh vaccine virus (units)	118,000	200,000	318,000	240,100	77,900
Gonococcus vaccine (ampoules)		110	110	110	
Mixed typhoid and cholera vaccine (cc.)	27,440	17,460	44,900	44,900	
Normal horse serum (ampoules)		50	50	50	
Typhoid and paratyphoid vaccine (cc.)	710	4,120	4,830	4,830	

**SMALLPOX VACCINATIONS IN THE CITY OF MANILA, DURING THE MONTH OF
MAY, 1922**

Health districts.	Total vaccina- tions.	Total inspec- tions.	Positive.	Negative.
No. 1, Intramuros	341	223	170	53
No. 2, Meisic	3,748	440	156	284
No. 4, Sampaloc	1,078	305	159	146
No. 5, Tondo	1,201	587	228	359
No. 6, Paco	555	208	109	99
Total	6,923	1,763	822	941

**CONSOLIDATED TYPHOID VACCINATIONS FOR THE MONTH OF MAY, 1922, IN
THE CITY OF MANILA**

Districts.	Number of persons vaccinated.				Total.
	Males.		Females.		
	Adults.	Children.	Adults.	Children.	
No. 1, Intramuros.....	183	15	28	9	230
No. 2, Meisic.....	166	255	94	190	705
No. 4, Sampaloc.....	225	86	206	99	616
No. 5, Tondo.....	103	37	76	19	235
No. 6, Paco.....					
Total.....	677	393	399	317	1,786

**CONSOLIDATED TYPHOID AND CHOLERA VACCINATIONS FOR THE MONTH OF
MAY, 1922, IN THE CITY OF MANILA**

Districts.	Number of persons vaccinated.								Total.
	Males.				Females.				
	Single injections.		Double injections.		Single injections.		Double injections.		
	A.	C.	A.	C.	A.	C.	A.	C.	
No. 1, Intramuros.....	607	260	835	193	454	252	321	130	2,552
No. 2, Meisic.....	1,311	1,110	469	398	461	850	412	407	5,418
No. 4, Sampaloc.....	793	411	142	59	749	386	117	71	2,728
No. 5, Tondo.....	434	272	245	183	391	290	224	120	2,109
No. 6, Paco.....	391	639	265	605	515	634	508	694	4,251
Total.....	3,536	2,692	1,456	1,388	2,570	2,412	1,582	1,422	17,058

NOTE.—A, means adults; C, children.

TOTAL VACCINATIONS OF SMALLPOX IN THE PROVINCES FOR THE YEAR 1922¹

Provinces.	Vaccinations.	Inspections.	Positive.	Negative.
Abra.....	4,392	4,166	2,762	1,404
Agusan.....	2,666	1,697	849	848
Albay.....	38,595	34,081	22,394	11,687
Antique.....	5,860	5,480	3,874	1,606
Bataan.....	5,973	5,839	4,629	1,210
Batangas.....	26,090	11,817	8,722	3,095
Bohol.....	16,528	12,911	8,026	4,885
Bukidnon.....	247	177	51	126
Bulacan.....	17,998	11,618	8,659	2,959
Cagayan.....	7,087	4,173	2,126	2,047
Camarines Norte.....	1,092	970	642	328
Camarines Sur.....	15,580	11,844	8,460	3,384
Capiz.....	13,394	12,324	9,420	2,904
Catanduanes.....	35,892	26,577	17,439	9,138
Cavite.....	7,777	7,757	5,459	2,298
Cebu.....	27,455	37,252	20,491	16,761
Cotabato.....	6,028	2,990	566	2,434
Culion Leper Colony.....	327	327	121	206
Davao.....	3,706	3,460	2,310	1,150
Ilocos Norte.....	8,464	7,229	3,186	4,043
Ilocos Sur.....	19,516	13,066	8,464	4,602
Iloilo.....	31,909	19,703	14,986	4,717
Isabela.....	4,778	3,493	1,341	2,152
Laguna.....	9,631	7,289	4,882	2,407
Lanao.....	629	791	468	323
La Union.....	7,110	5,631	2,527	3,104
Leyte.....	62,523	33,824	24,886	8,938
Marinduque.....	5,706	4,203	2,676	1,527
Masbate.....	3,517			
Mindoro.....	6,260	4,769	2,940	1,829
Misamis.....	2,281	1,282	809	473
Mountain Province.....	7,288	4,445	3,108	1,337
Nueva Ecija.....	74,954	48,949	28,556	20,393
Nueva Vizcaya.....	1,378	1,327	1,036	291
Occidental Negros.....	11,366	7,735	4,394	3,341
Oriental Negros.....	16,313	8,250	5,551	2,699
Palawan.....	500	490	248	242
Pampanga.....	7,475	4,334	3,240	1,094
Pangasinan.....	77,014	61,994	30,772	31,222
Rizal.....	22,782	18,884	11,833	7,051
Romblon.....	7,147	5,450	3,590	1,860
Samar.....	7,990	4,908	2,735	2,173
Sulu.....	549	460	236	224
Surigao.....	6,887	5,911	3,472	2,439
Tarlac.....	3,438	3,066	2,138	928
Tayabas.....	11,734	9,939	6,665	3,274
Zambales.....	4,306	4,092	2,810	1,282
Zamboanga.....	2,609	2,096	1,277	819
Total.....	662,741	489,070	305,816	183,254

¹ Compilation of reports received since January.

Other reports not yet received.

**CONSOLIDATED CHOLERA VACCINATIONS REPORTED IN THE PROVINCES
SINCE JANUARY, 1922¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Abra.....	282	1,153	1,435
Albay.....	13,168	7,650	20,818
Antique.....	2,584	1,989	4,573
Bataan.....	776	417	1,193
Bohol.....	1,189	979	2,168
Bulacan.....	6,400	4,364	10,764
Agayan.....	5,158	4,207	9,365
Camarines Norte.....	739	94	833
Capiz.....	2,722	1,266	3,987
Catanduanes.....	654	430	1,084
Cavite.....	7,104	4,192	11,296
Cebu.....	3,562	1,694	5,256
Cotabato.....	412	110	522
Davao.....	62	30	92
Ilocos Norte.....	403	666	1,069
Ilocos Sur.....	3,736	2,722	6,458
Iloilo.....	972	1,178	2,150
Laguna.....	4,866	7,384	12,250
La Union.....	3,854	2,564	6,418
Leyte.....	1,075	544	1,619
Marinduque.....	550	363	913
Mindoro.....	1,354	565	1,919
Misamis.....	900	520	1,420
Nueva Ecija.....	1,520	1,476	2,996
Nueva Vizcaya.....	676	949	1,625
Oriental Negros.....	2,556	2,044	4,600
Pampanga.....	4,120	3,649	7,769
Pangasinan.....	4,859	3,661	8,520
Rizal.....	15,799	9,745	25,544
Romblon.....	514	103	617
Sorsogon.....	1,310	703	2,013
Sulu.....	913	159	1,072
Tarlac.....	528	304	832
Tayabas.....	1,839	318	2,157
Zambales.....	2,159	1,891	4,050
Zamboanga.....	1,230	1,121	2,351
Total.....	100,545	71,203	171,748

**CONSOLIDATED TYPHOID VACCINATIONS REPORTED IN THE PROVINCES
SINCE JANUARY, 1922¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Cavite.....	36	11	47
Davao.....	3		3
Ilocos Sur.....	1,002	851	1,853
Laguna.....	2,885	2,115	5,000
La Union.....	408	110	518
Pangasinan.....	535	147	682
Total.....	4,869	3,234	8,103

¹Compilation of reports received.

Other reports not yet received.

CONSOLIDATED TYPHOID AND CHOLERA VACCINATIONS REPORTED IN THE PROVINCES SINCE JANUARY, 1922¹

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Abra.....	202	80	282
Cagayan.....	906	434	1,340
Capiz.....	249	106	355
Cavite.....	433	339	772
Davao.....	311	113	424
Ilocos Norte.....	1,779	1,074	2,853
Ilocos Sur.....	4,625	1,856	6,481
Iloilo.....	2,520	1,128	3,648
Isabela.....	197	70	267
La Union.....	2,995	1,401	4,396
Marinduque.....	100	50	150
Nueva Ecija.....	474	128	602
Pampanga.....	3,945	2,163	6,108
Tayabas.....	1,799	.....	1,799
Total.....	20,635	8,942	29,477

¹ Compilation of reports received.

Other reports not yet received.

SMALLPOX REPORTED FROM THE PROVINCES, FOR THE MONTH OF MAY, 1922

(No case and no death reported during the month.)

CHOLERA REPORTED FROM THE PROVINCES, FOR THE MONTH OF MAY, 1922

Provinces and towns.	Cases.	Deaths.
Bulacan:		
Malolos.....	1	1
Cavite:		
San Roque.....	1	.....
Pampanga:		
Sexmoan.....	1	1
Porac.....	1	1
Rizal:		
Navotas.....	1	.....
Pasay.....	1	.....
Tarlac:		
Capas.....	1	1
Tarlac.....	1	1
Total.....	8	5

OCT 24 1923

THE GOVERNMENT OF THE PHILIPPINE ISLANDS
DEPARTMENT OF PUBLIC INSTRUCTION

MONTHLY BULLETIN
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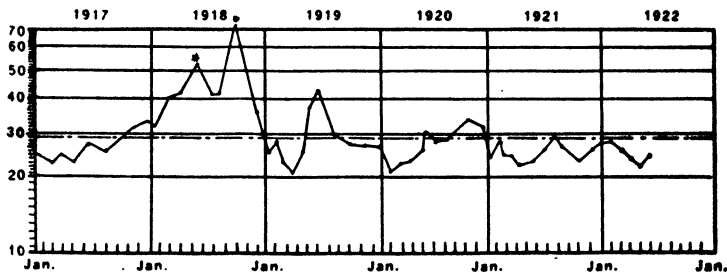
The keystone of a nation's progress is sanitation and education



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2. Vaccination Versus Smallpox.
3. Miscellaneous.
4. Vital Statistics for June.

ANNUAL DEATH RATES BY MONTH, CITY OF MANILA



a Influenza.

----- Average death rate for the last five years.

MANILA
BUREAU OF PRINTING
1922

189675

COMMITTEE ON THE MONTHLY BULLETIN, P. H. S.

S. V. DEL ROSARIO, *Assistant Director of Health, Chairman*

J. P. BANTUG, *Senior Medical Inspector, P. H. S., Member*

L. LOPEZ RIZAL, *Senior Medical Inspector, P. H. S., Member*

M. V. ARGUELLES, *Senior Surgeon, P. H. S., Secretary*

KUMAIN KAYO NG TWAS

1. Matatawag na twas ang isang pagkain kung pinagkakatiipunan ng labat ng uri na nakapagpapalusog ng katawan (katis (proteina), taba, tamis (carbohidrato), asin abuhin (sales minerales) at katawanain (vitamina)) sa sapat na dami.

2. Iwasan niyo ang pagkaing bugtong (exclusiva), sa ibang sabi, ang pagkaing naglalaman ng labis ng isang uring pangpalusog at kakaunti o salat sa uring iba. Ang mga nakaririwasa ay mahilig sa pagkaing ma katawanain (vitamina) samantalang ang mga kapos ay sa yaong malalo ng tamis (carbohidratos).

3. Ang twas na pagkain ay nararapat na doroonan ng mga sumusunod na pangpalusog ng katawan.

(a) Katis (proteina): Upang lumaki ang katawan at mapalitan ang mga naubos na laman.

(b) Tamis at taba upang magkapangpasigla.

(c) Asin na siyang nakapagpapabuto at nakapagpapabuto at nakapagpapabuhay ng dugo.

(d) Katawanain (vitaminas) upang mapaging katawan ang pagkain.

4. Ang mga kinakukunan ng pangpalusog ng katawan ay ang mga sumusunod:

(a) Ng mga katis: lamang-kati, isda, ibon, itlog, gatas, gualantaw, patani, batak, keso, mani, pill, mungo, at iba pa.

(b) Mga tamis: Binutil, gaya ng bigas, mais, mungo inugat (patatas, gabe, kamote, ube), asukal, bungang-kahoy (saging, manga, ates, at iba pa).

(c) Ng mga taba: Mantika, langis, sebo, katas ng mga binaog (nueces) at mga binhiin (mani, butong balubad, at pill).

(d) Ng mga asin abuhain (sales minerales): Gatas, mga bungang-kahoy na makatas, gulaying, kinilaw (ensalada), asin kuraniwan, at iba pa.

(e) Ng mga katawanain: Mga binutil, pinawa, gatas, mantekilla, keso, burok, atay, bato ng hayop, gulay, at iba pa.

5. Ang paghuhaging malwat sa pagkaing bugtong ay nagbibigay kaparaanan ng sumusunod na mga sakit:

(a) Alupihan (Escorbuto) na sumasanhi sa pagkaing lagi ng mga inimbak na kainin at binutil, at sa kakulangan ng bungang kahoy at sariwang gulay.

(b) Bil-bil (beri-beri) na sumasanhi sa pagkain lagi at sagana ng napakakiskis na bigas.

(c) Pamamalagud (raquitismo) na ang dahilan ay ang pagkain lagi at sagana ng mga lelotin (amillacea) at walang sapat na kasamang pagkaing lamang-kati at abuhanan (materia mineral).

(d) Tagihawat o sibil at singaw sa balat (eczema) na ang pinagbubuhatan ay ang malabis na pagkain tamisin at tabain.

(e) Ang pagtitibi (estreñimiento) na ang dahilan ay ang pagkain ng madadaling matunaw sa tian na bahagiya ng matirahan ng sapal.

6 (a) Magkain kayo ng pinawa at untulan ang napakakiniskis na bigas; gayon din ng lamang kating di bilasa, gulay o sariwang bungang kahoy, gatas, itlog, mungo, upang maiwasan ang manas.

(b) Ang pagsangkap sa pagkain ng katas ng suha, gulay at bungang kahoy na sariwa ay nakagagaling at nakapagpapaiwas sa sakit na (escorbuto).

(c) Ang gatas ng tao, ang bagong gatas ng baka, bungang kahoy na sariwa, at katas ng suha ay nakapagpapaiwas sa pamamalagud (raquitismo).

7. Ang dami ng pagkaing dapat makapagbigay ng sapat na lakas ng katawan ay sumusunod sa panahon sa pagbabago nito, gawain ng bawat isa, pagpapagpag na ginagawa, damdamin ng katawan, gulang, kung babae o lalake at bigat ng katawan:

Mga halimbawa: Ang isang magsasaka ay nangangailangang kumain ng tamis (carbohydratos) at taba higit kay sa isang tagasulat lamang. Ang mga salanta ay dapat kumain ng mga mapagpakatawan at madaaling matunaw.

8. Bata at matanda ay dapat uminom ng maraming tubig sa pagitan ng mga oras ng pagkain.

9. Iwasan ang paginom ng ano mang alak at saganang paginom ng kafé at tsa.

10. Ang pagkain sa oras, gayon din ang nguyaing mabuti ang kinakain ay mga kailanganing ng twas na pagkain upan tamuhin yaong sapat na sibul ng katayan, karaniwang paglake at masiksik na mga bisig.

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**SOME EPIDEMIOLOGICAL PROBLEMS OF CHOLERA IN
THE PHILIPPINES**

By **L. LOPEZ RIZAL, P. H. S.**

The epidemiological problems in the Philippines are so numerable, aspects under which they occur so varied, and our data so scarce, because of the brevity of the sanitary history of our country, that it is neither easy nor practicable in any way to treat of all of them within a limited treatise as the present one. Consequently, therefore, I shall limit myself to the consideration of certain problems of interest at the present time and of local importance to our community, since almost every year we have and have had to combat them and search means for their eradication.

I refer to Asiatic cholera, some of whose aspects are perhaps well-known to our sanitary officials, but, notwithstanding, are not of less local importance or of less general interest. And in speaking of these serious problems, I wish to have it understood that I am dwelling on such problems and not on their solution. I shall, therefore, simply mention them without offering any solution. The problems, then, that I shall mention are phenomena observed in the various epidemics that occurred in the Archipelago and facts found in the analysis of their development. This work will, therefore, serve as a warning to the medical profession in general and to my colleagues in the Philippine Health Service in particular, with respect to those facts not yet explained and whose solution would simplify the methods that should be adopted to eradicate cholera from the Philippines.

I shall not mention how important the solution of these problems would be because such mention would place this work on a par with the solution. I shall, therefore, leave it to this distinguished assembly, not to judge the value of this work, but to judge the value that the discovery of the solution of the phenomena that I shall try to explain would have.

HISTORY

Before passing on to explain which facts are those that I consider problems, I shall give a brief history of cholera in the Philippines. Accord-

ing to what has been published up to the present time of the history of Asiatic cholera in the Philippines, this disease may be said to have appeared for the first time in these Islands in 1817 proceeding from India. If we may accept the suppositions based on the characteristics of the disease itself, the history of the country, and the commercial relations it has had for centuries, it can not at all be improbable that cholera was introduced into the Philippines at the end of the seventeenth century or in the beginning of the eighteenth. It is known that cholera existed in China as far back as 1669, coincident with the panemic of the same year; and the commercial relations with this country and the frequent incursions of Chinese in the Islands considered, it is impossible to believe that during a period of more than a century of continuous contact with an infected country, our country remained free from the disease. The epidemics that occurred and which were officially confirmed in the Philippines since the year 1817 or 1820, as recorded, were: those of 1820, 1821, 1823, 1830, 1842, 1855, 1863 to 1865, 1882 to 1883, 1888 to 1890. A large number of cases also occurred during the subsequent years up to the change of sovereignty of the Islands in 1898. The epidemics that occurred since the beginning of the new régime were those of 1902, 1904, 1905 to 1906 in Manila, 1905 to 1908 in the provinces, 1908 to 1909, 1910 to 1911, a small one in 1913, 1914 and 1915, 1916, 1918, 1919, and 1920, and lastly that of 1921 and 1922.

FACTS

Having made this brief review of the cholera epidemics in the Philippines, let us analyze the data of the conditions that accompanied their appearance and development. Outside of the epidemics of 1817 which, it is supposed, came from India, the epidemic of 1882 brought from the exterior by a vessel named *Lohk-hang*, and that of 1902 to 1904 which, it is presumed, came from China through vegetables unloaded at the "Farola," all the other epidemics that occurred in Manila and the provinces are believed to have come from nowhere else than the interior. It would be unnecessary to repeat this fact were it not so closely related with other facts that we shall analyze and which show that this disease is of long standing and is endemic in the country. Without being radical in the appreciation of facts, as former Secretary of the Interior D. C. Worcester, who considered all cases of enterocolitis and gastroenteritis as Asiatic cholera, we may, nevertheless, accept as certain that since the Spanish times or from 1882 up to the present time, deaths from cholera occurred in the City of Manila from year to year, although with brief interruptions during some months, as the 15 months between 1904 and 1905, the first months of 1907 which preceded the epidemic of that same year, the absence of cases and deaths during nearly the entire year of 1912, the three months from March to July, 1914, and the interruption between 1917 to 1920.

What has been said with respect to Manila may likewise be said of the provinces. Even without counting on very exact data, we may say that there was a truce of the epidemic in the provinces of nearly 15 months after the epidemic of 1904, of two months (May and June) in 1907, of 15 months during the years 1911 to 1913, and of short intervals of three to four months after all other epidemics in general. We have noted the same facts or inter-epidemic intervals upon analyzing the epidemics that occurred in separate and distinct provinces. Without mentioning more than what was observed in the epidemics of 1902 to 1904 and 1905 to 1908, as shown in the following table, we have sufficient data to serve as an example and confirmation of what we have said.

*Duration of the epidemics and inter-epidemic period by provinces in
1902-1904 and 1905-1908*

Provinces.	1902-1904		1905-1908	
	Duration in months.	Maximum in months.	Duration in months.	Maximum in months.
Albay.....	18	3		
Antique.....	9	3		
Bataan.....	21	11	25	16
Batangas.....	19	4	35	18
Bulacan.....	21	8		
Ambos Camarines.....	21	1		
Capiz.....	18	2		
Cavite.....	21	8		
Cebu.....	21	4		
Ilocos Norte.....	15	4		
Ilocos Sur.....	19	7		
Laguna.....	19	6		
Leyte.....	19	4		
Mindoro.....	14	10		
Nueva Ecija.....	21	6	33	19
Pampanga.....	16	3		
Pangasinan.....	17	9	27	15
Rizal.....	21	2		
Samar.....	15	4	5	2
Tarlac.....	20		31	16
Tayabas.....	17	10	12	8
Average.....	18.19	5.45	24.00	12.71

In spite of the fact that all the provinces in general have had to suffer from the cholera epidemics with more or less intensity and frequency, it is a noteworthy fact to mention, nevertheless, the absence of cholera in the Province of Batanes, and that the disease has never presented itself with epidemic character in the provinces of Abra, Palawan, Nueva Vizcaya, Romblon, and Isabela; while in Batangas, Bulacan, Cebu, Pampanga, Pangasinan, and Rizal the epidemics followed each other in rapid succession and almost continuously since 1902 to 1920. To what is this fact due? What factors intervene in continuing the permanence of cholera in these last-mentioned provinces?

Sanitation is not more highly developed in the former provinces than in the latter which would explain the absence of the epidemics in the first mentioned provinces. The difficulty of communication likewise does not satisfactorily explain the phenomenon, sporadic cases of cholera having been observed in those localities. Other factors, then, operate to prevent the development of the cholera epidemic in the provinces of Abra, Palawan, Nueva Vizcaya, Romblon, and Isabela, as likewise others exist in the other provinces that foster the persistence of cholera and its acquirement of epidemic character with frequency. Could this phenomenon be explained by the existence of a goodly number of cholera-carriers in these localities, whose germs scattered about intermittently acquire from time to time the virulence necessary to develop an epidemic? I do not find it necessary to adduce many reasons to believe that our epidemics are due rather to cholera-carriers than to contaminated water, food, etc. Since the investigations of Kock and the observations of Dunbar in 1892, calling attention to the possibility to develop and propagate diseases by disease-carriers, confirmed and accepted afterwards in many other parts and by different observers, this phenomenon is hardly discussed as a determining factor not only of the development, but also of the propagation of cholera. Examples of epidemics attributed to disease-carriers are the outbreak in the insane asylum in Nietenleben in 1893, another cited by Grey occurred in Puri,

India, in 1912, which was caused by a 12-year-old boy who was a vibrio-carrier. In Manila itself we had an example in 1905 when the first typical cholera case occurred in Bilibid Prison followed by others. The problem, consequently, to resolve would be: (a) What phenomena or conditions influence in the latency of the vibrio in the carriers, and (b) What factors contribute to or under what circumstances does the virulence of the vibrios increase (if such a phenomenon exists) to put the carrier in a condition favorable to the development of the disease? With reference to point (a), it appears to have its explanation in the finding of vibrios in the vesicula biliar. This explanation, however, to my view does not satisfy or can explain completely the question of intermittency. On the other hand, we know that the presence of vibrios in the vesicula biliar of the carriers is not always certain. The investigations in the last few years on the biological nature of this germ tend to demonstrate its notable enterotropic characteristics.

Gentlemen, I do not believe in repeating many times what is generally known, that upon searching for the origin of the infection we must search for it in the man himself. In the case of cholera this is a fact that we must not forget, because, in the man, be he a carrier, a missed case typical, or a real cholera case, is where the danger of an epidemic exists. The cholera epidemics, after long periods of absence in certain localities and whose origin does not proceed from the exterior, compels us to admit the survival of the vibro in something or in somebody that has harbored it during the inter-epidemic period. This survival of the vibrio is what we must try to explain. The report of the experiments recently made by Sir Alexander Houston, Director of the Metropolitan Water Board, London, during the year ending May, 1921, states that the vitality of the cholera vibrio in the water of the river suffered a reduction of one 99.9 per cent after having been one week in the reservoir. In none of the eighteen samples of 100 cc. of water could a cholera vibrio be found after three weeks, having utilized in his proofs and experiments the reaction of "cholera red" in the examination of these samples.

The experiments recently carried out in Batavia by Flu in the liquid effluent of the septic tanks and in the sea-water, as well as the investigations made by Schobl with reference to the survival of vibrios in fresh water and salt water in Manila, are all point to the weak vitality of this organism outside of the human body. We do not mention the experiments made for the purpose of verifying what is the survival of the vibrio in the wastes of the sewer, in the earth, in fruits, in animals, and in the ports of New York, Hamburg, etc., carried out by Nicoti and Reitsch, Klein, Dumbbar, Geliare, Cerda-Troili-Paterson and others, all having arrived about at the same conclusion. Up to the present, therefore, it is taken for granted that the vitality of cholera vibrios outside of the human organism is of relative brevity; under favorable conditions it cannot live longer than six months. However, we do not know if the fact that it cannot be found in the exterior really signifies its absence, or is it that it cannot be recognized by having suffered a transformation that disguises its true character, being able under favorable circumstances to re-acquire again its known characteristics. The adaptability of the vibrio and its fight for its existence, upon adapting itself to the mode in which it lives, favorable or not to its development, could cause it to undergo a transformation in its functions and structure that would give it a form difficult to recognize as a

true cholera vibrio. It is a fact that the vibrio sometimes appears in the form of a *coco* or a walking-stick that has nothing of the usual spiral form in some cultures. On the contrary, it has been found that the vibrio persists for years in man, that is, a man may be an intermittent cholera-carrier for several years in which the vibrio undergoes changes as to its agglutinability. This fact has been observed in several prisoners in Bilibid: Prisoner No. 8841, discharged with an intermittency more or less of regular cholera vibrio from September, 1914, to March, 1917; Prisoner No. 1140, who was a carrier from August, 1916, to April, 1917; and Prisoner No. 7945 (negro) whose excreta showed cholera vibrio intermittently from August, 1916, to May, 1917; and in all of them the vibrio transformed itself from the agglutinable to non-agglutinable variety. From the investigations made of cholera in the Philippines, it is known, on the other hand, that in many specimens of excreta taken from dead persons, especially children diagnosed for meningitis, enteritis, enterocolitis, beriberi, etc., have been found carriers of *B. coma*. These facts demonstrate that the man, and especially the children, are the factors that favor the survival of the vibrio in a country in which the disease is endemic. Well then, I repeat, why is it that the vibrios live for such a long time in the carriers? And how shall we destroy their vitality? In a word, how should we disinfect the carriers?

This phase of the question, discussed in the preceding paragraphs, leads us from one path to another no less important, which is: In what form or under what other forms does the vibrio exist in its latent state or survival stage during the inter-epidemic periods, whether in the man or whether outside of the human organism? The understanding of this question would be of great importance to the epidemiologist. In resolving this factor, the office of the Philippine Health Service would have an almost open road for the end pursued—the prevention of cholera and the repetition of epidemic explosions. If we knew the enemy under all its aspects and transformations, its elimination as an essential factor would be a relatively easy problem. It is not necessary to state, that this problem is purely biological, the solution of which is in the hands of our bacteriologists. We already know some of the forms in which it exists in the examination—tube, all in themselves a problem. More important still, in what other forms may it be found outside of these?

Since 1908 the investigations of carriers in the Philippines have been conducted in a manner almost systematical. In these investigations, a new factor has appeared to complicate the epidemiology of cholera in the Philippines, and this factor is the discovery of vibrio very similar of those of cholera, with the difference that they do not have the property of agglutination. These vibrios have been found not only in cases diagnosed clinically, but also in healthy men who did not have any signs of the disease, having been considered as carriers. All the reasons appear to indicate that these vibrios are true cholera vibrios, which on account of conditions and circumstances unknown, have lost their property of agglutination, with the peculiarity that under other conditions favorable they will again recover it. We may, consequently, consider these non-agglutinating vibrios as a form in which the cholera vibrio exists; and as a result, the Philippine Health Service has to consider them as such, and has to take the same measures against the cases and carriers of these vibrios as those that are taken against the carriers of true cholera vibrio. The actions and results

have not cause for regret, at least up to the present time, on the part of the Philippine Health Service. If this is the case it can also be supposed that the cholera vibrio can exist in distinct forms other than the one we have just mentioned.

Is the intermittence observed in the discharge of vibrios by carriers truly a real intermittency, or do they continue expelling vibrios in a form not yet known?

Having outlined this problem and admitting as a fact the relation that exists between the non-agglutinating vibrios and the cholera epidemics, let us pass on to consider other phases of the epidemiological problem of cholera.

How do the non-agglutinating vibrios influence the appearance and disappearance of cholera and what power do they exercise over the epidemiology of the same in general? In one of the papers presented to the IV Congress of the Association of Tropical Medicine of the Far East celebrated in Java, by the writer in collaboration with the Assistant Director of Health, the theory was advanced that the non-agglutinating vibrios are identical to those of true cholera, and our reasons were based on clinico-pathological facts, some biological, and the rest epidemiological. We have observed, besides, in distinct epidemics that the greater proportion of cases and carriers with non-agglutinable vibrio signified a lesser fatality; that the larger the proportion of non-agglutinating carriers was the lesser was the incidence; and that the loss of the property of agglutination signifies a certain degree of degeneration of the vibrios.

Up to the present time these theories appear to continue to be confirmed by the facts that are observed. The last epidemic itself, of 1921 to 1922, is also a proof of the facts mentioned. We confess that these theories are mere explanations and deductions of phenomena observed since these problems have been given attention; and lest we may be in error, I submit this question as one of the problems to be solved, or at least, to be verified.

Upon speaking of the first question, I have accidentally made mention of an important point for the prevention of cholera epidemics: I refer to "How could the sterilization of carriers be effected?" and admitting that this is an important factor in the intermittency of epidemic explosions in a country. If we succeeded in sterilizing them, would we have eliminated the focus and consequently diminished or prevented the possibility of epidemics? On a conference held by high insular authorities with reference to the last epidemic, one of the statements that were made was that in the present state of our knowledge, we have no means of sterilizing the carriers. On the one hand, we know in past years that to treat carriers various remedies were utilized, such as arsenic sulphuric acid, *tauro colato* de soda, ox bile, pure calomel, calomel with *adrenalina*, salol and *urotropina* mixed, and others, without apparently satisfactory results. Nevertheless, we must confess that systematic studies of these treatments have not been made in such a manner that we may determine, not only which is the best of them, but also how to improve these procedures for the complete sterilization of carriers.

This is one of the problems that I submit to the consideration of those interested in public health work.

VACCINATION VERSUS SMALLPOX

By PEDRO JOVEN, M. D., P. H. S.

Vaccination is undoubtedly the most effective prophylactic measure against smallpox as it is also the one agent conducive to the rapid suppression of epidemics in any locality.

From 1691, when the first epidemic in history is recorded, up to the present time, smallpox has not disappeared from the Islands. Although from a remote period up to 1903, it has been a constant cause of our depleted population, yet its ravages have been limited considerably, thanks to compulsory systematic vaccination begun years ago.

Vaccination has exerted its beneficial influence on these Islands in two memorable periods:

The first dates back to the year 1803 when vaccination was introduced for the first time by Don Francisco Javier de Balmis at the behest of King Charles IV of Spain. The situation was markedly improved since then, so that the Filipinos, in grateful recognition of the benefits received from the introduction of vaccination, erected a life-size statute of Charles IV on Plaza de Palacio, now called Plaza McKinley.

The second period was more remarkable for the positive benefit secured to the inhabitants. This period dates back to 1903 with the passage of a law making vaccination compulsory throughout the Philippines. We shall cite several instances to prove this statement.

The author of this article was a municipal physician at Bacolor, Pangasinana, who from 1903 to 1908 personally performed, during each of those years from October to January, vaccinations among infants more than three months old, and revaccinations among those between seven and eighteen years; and during this period, outside of 35 cases with seven deaths which occurred from January to April, 1904, no other cases of smallpox have been registered in that municipality. In Manila, from 1910 to 1915 smallpox was practically eradicated, with only a few cases remaining of varioloid without death.

In the provinces, however, the disease persisted in an irregular way, but with a tendency to reduction in the number of cases and of deaths, until at the present time, it has been eradicated in many localities. The persistence of smallpox is due to various causes: the small personnel, poor means of transportation, and deficient supervision, with the result that there have been fictitious vaccinations and erroneous inspections reported.

The reappearance of smallpox in 1918, causing 1,326 cases with 989 deaths in Manila, can be attributed chiefly to the increasing number of the inhabitants who were not properly vaccinated, to the improper attention given to children since 1908, and also to the moving, unprotected masses of population from the provinces. The first three cases which marked the beginning of the epidemic of smallpox in Manila occurred to two natives from Palawan and one Englishman, who arrived in Manila in December,

1917, with the disease in full progress, with the result that the first two died on the tenth of January, 1918.

On account of the fact that there was relatively a small proportion of immune persons, especially among children, in the provinces, and with the revaccination work not yet begun, smallpox quickly spread throughout the Philippines, and caused a higher mortality than in Manila. It is an established fact that in Mindanao and Sulu, during the Spanish régime, during the military administration, and later after the civil government had been implanted, smallpox caused a great number of victims in these regions among the Christian as well as among the Mohammedan and pagan population.

The vaccinations performed among the Moro population was done with great opposition at the beginning and there arose armed resistance to the extent of causing the death of two of our vaccinators. Little by little, by means of persuasion and because of the beneficent results of vaccination, this hostile attitude ceased; and at the present time vaccination is received without protest and, by many of them, with evident satisfaction.

In Manila, after an intensive campaign of vaccination and revaccination, the epidemic of 1918 was controlled after five months' work, with the result that the number of deaths from this disease was only 55 in 1919, five in 1920, and none in 1921.

As a result of our sad experience in the last epidemic of the disease, that of 1919, without abandoning the general vaccination of the whole population, we have dedicated special attention to the vaccination of small children, beginning at the age of one month, and compulsory revaccination of older children that are yearly admitted to all the public and private schools. Our policy is based upon the following facts:

1. Of the 1,326 cases of smallpox in 1918 in Manila, 1,149 were in persons who were never vaccinated and 177 in persons with positive vaccination.

2. Of these 1,326 cases, 77 per cent were in children of one year to six years of age, and 23 per cent in seven years old and older.

3. Of these cases, also, 55.35 per cent were in children of one to three years of age and 13.65 per cent in children less than one year old. Manila is at the present time free from smallpox and we shall henceforth have the disease under control if our system of vaccinating small children is continued.

In the provinces, it is not possible to eradicate this disease as long as we do not carry out the indispensable plan of smallpox vaccination in all the municipalities of each province, because smallpox appears and spread from one province to another before the systematic vaccination work is completed in any one province.

This deficiency cannot be attributed to the Health Service, because it has not been able to increase its personnel on account of our small appropriation. However, it is evident that vaccination is the only measure to which the reduction of the number of cases and of deaths from smallpox in the provinces in 1921 can be attributed.

The same difficulties have been encountered in Mindanao and Sulu, coupled with the opposition of the Moro population. Nevertheless, the vaccination work performed had satisfactory results in this department. The low mortality from smallpox in 1921 and the significant fact that, of the 1,060 cases, only eight were in persons with positive vaccination, and the 592 deaths were in persons who had never been vaccinated.

CONCLUSIONS

1. Antivariolic vaccination has been beneficial to the Philippines at all times, because it has reduced remarkably the mortality from smallpox in the provinces and Mindanao and Sulu and caused its eradication in two different periods in Manila.

2. The persistence of smallpox in the provinces and in Mindanao and Sulu is to be attributed to defective vaccination, particularly to the impossibility of performing simultaneous vaccination in all the provinces.

3. Smallpox was always present formerly among the Moro population of Mindanao and Sulu; but with vaccination, the number of cases as well as of deaths from this disease has been reduced since 1921, not only among the Moro population, but throughout the entire Department.

4. Although the vaccination campaign in the provinces is not at all what it should be, still smallpox in the Philippines is not so extensive or virulent as it is in the United States.

Let us compare the following figures: In 1920 smallpox broke out in 223 cities in the United States with a total population of 29,000,000, and in 1921 in the Philippines smallpox broke out in 20 provinces with a population of 3,500,000.

5. In the United States as well as in Canada, Barbados, and adjacent regions, smallpox is more benignant than in the Philippines. Nevertheless, in the West South Central group of the United States with a population of about 505,000, 134 deaths were registered; and the same number of deaths was registered in 1921 in 16 provinces of the Philippines with an approximate population of 3,000,000.

**CASES AND DEATHS FROM SMALLPOX AND VARIOLOID IN MANILA IN
1918 BY DISTRICTS**

Health districts	Smallpox.							
	Total.		Vaccinated.					
			Never.		Negative previously.		Positive previously.	
	C.	D.	C.	D.	C.	D.	C.	D.
No. 1.....	67	28	29	19	16	6	22	3
No. 2.....	384	291	261	215	86	67	37	9
No. 4.....	162	118	86	72	56	41	20	5
No. 5.....	674	524	414	353	172	131	88	40
No. 6.....	39	28	23	21	6	4	10	3
Total.....	1,326	989	813	680	336	249	177	60

Health districts.	Varioloid.							
	Total.		Vaccinated.					
			Never.		Negative previously.		Positive previously.	
	C.	D.	C.	D.	C.	D.	C.	D.
No. 1.....	106	1	10	1	12	0	84	0
No. 2.....	121	2	28	1	5	0	88	1
No. 4.....	106	2	11	2	17	0	78	0
No. 5.....	145	3	32	3	10	0	103	0
No. 6.....	39	0	0	0	3	0	36	0
Total.....	517	8	81	7	47	0	389	1

CASES AND DEATHS FROM SMALLPOX AND VARIOLOID BY AGE, 1918

Health districts.	Smallpox.							
	Total.		Vaccinated.					
			Never.		Negative previously.		Positive previously.	
	C.	D.	C.	D.	C.	D.	D.	D.
Under 1 year.....	181	165	134	129	37	32	10	4
1 year.....	233	217	160	155	52	48	21	14
2 years.....	172	150	109	100	53	47	10	3
3 years.....	149	123	82	73	49	42	18	8
4 years.....	137	91	82	62	34	20	21	9
5 years.....	91	64	57	44	25	16	9	4
6 years.....	58	37	33	23	16	9	9	5
7-10 years.....	80	39	42	26	22	11	16	2
11-15 years.....	47	22	25	16	8	5	14	1
16-20 years.....	88	47	44	31	20	8	24	8
21-25 years.....	51	21	26	15	11	5	14	1
26-30 years.....	18	8	8	3	7	5	3	0
31-40 years.....	12	3	7	2	1	0	4	1
41-50 years.....	6	2	4	1	1	1	1	0
51-60 years.....	3	0	0	0	0	0	3	0
Total.....	1,326	989	813	680	336	249	177	60

Health districts.	Varioloid.							
	Total.		Vaccinated.					
			Never.		Negative previously.		Positive previously.	
	C.	D.	C.	D.	C.	D.	C.	D.
Under 1 year.....	20	2	7	1	0	0	13	1
1 year.....	55	1	19	1	6	0	30	0
2 years.....	28	3	9	3	1	0	18	0
3 years.....	24	0	2	0	2	0	20	0
4 years.....	25	1	3	1	3	0	19	0
5 years.....	16	1	3	1	4	0	9	0
6 years.....	29	0	8	0	1	0	20	0
7-10 years.....	50	0	3	0	3	0	44	0
11-15 years.....	60	0	3	0	9	0	48	0
16-20 years.....	78	0	6	0	6	0	66	0
21-25 years.....	71	0	12	0	6	0	53	0
26-30 years.....	25	0	4	0	2	0	19	0
31-40 years.....	26	0	2	0	3	0	21	0
41-50 years.....	9	0	0	0	1	0	8	0
51-60 years.....	1	0	0	0	0	0	1	0
Total.....	517	8	81	7	47	0	389	1

VACCINATIONS AND DEATH FROM SMALLPOX

Years.	Manila.		Provinces.		Mindanao and Sulu.	
	Vaccination.	Deaths.	Vaccination.	Deaths.	Vaccination.	Deaths.
1898 ^a	10,477	(b)	(b)	(b)	(b)	(b)
1899.....	103,931	(b)	(b)	(b)	(b)	(b)
1900.....	60,592	(b)	(b)	(b)	(b)	(b)
1901.....	73,891	(b)	(b)	(b)	(b)	(b)
1902.....	133,803	(b)	(b)	(b)	(b)	(b)
1903.....	148,714	16	(b)	226	(b)	(b)
1904.....	151,463	29	87,864	10,117	(b)	(b)
1905.....	82,942	2	943,702	5,110	(b)	(b)
1906 ^c	(b)	5	1,245,893	4,046	(b)	(b)
1907 ^c	(b)	1	2,022,380	3,025	(b)	(b)
1908.....	113,797	122	1,686,767	8,612	(b)	(b)
1909.....	47,003	25	818,195	6,212	(b)	(b)
1910.....	41,799	0	933,676	3,044	(b)	(b)
1911.....	72,120	0	1,167,984	1,192	(b)	(b)
1912.....	85,276	0	1,109,709	567	(b)	(b)
1913.....	104,852	0	1,419,352	903	(b)	(b)
1914.....	79,640	0	1,461,273	438	(b)	(b)
1915.....	48,588	0	1,178,883	278	^b 25,614	(b)
1916.....	55,973	1	699,728	250	^b 77,340	^b 359
1917.....	81,390	2	660,460	388	^b 84,689	^b 148
1918.....	414,410	989	3,285,376	^a 14,092	^b 176,659	^m 1,486
1919.....	360,712	55	7,110,299	^b 48,146	^b 392,816	ⁿ 1,770
1920.....	257,951	5	3,222,433	^a 4,295	^b 272,926	^o 2,806
1921.....	138,517	0	2,198,275	^a 134	^b 154,093	^b 592

^a Two months only (October and November).^b No data.^c 20,000 and 106,000 units of vaccine virus distributed respectively.^d Three (8) provinces infected.^e Twenty-seven (27) provinces infected.^f All provinces infected.^g Sixteen (16) provinces infected.^h Five (5) provinces in the Department vaccinated.ⁱ Eight (8) provinces in the Department vaccinated.^j All provinces in the Department vaccinated.^k Two (2) provinces in the Department infected.^l Four (4) provinces in the Department infected.^m Seven (7) provinces in the Department infected.ⁿ All provinces in the Department infected.^o Nine (9) provinces in the Department infected.

INCIDENCE OF CASES OF SMALLPOX WITH VACCINATION POSITIVE AND WITHOUT VACCINATION AMONG CHILDREN AND ADULTS

Years.	Manila.			Provinces.			Mindanao and Sulu.					
	With vaccination position. itive.	Without vaccination.	Children.	Adults.	With vaccination position. itive.	Without vaccination.	Children.	Adults.	With vaccination position. itive.	Without vaccination.	Children.	Adults.
1918.	177	1,149	1,101	225	(^a)	52,763	(^a)	(^a)	(^a)	(^a)	(^a)	(^a)
1919.	8	45	40	13	14,735	7,700	36,109	19,909	(^a)	(^a)	(^a)	(^a)
1920.	1	4	3	2	1,497	4,747	4,687	4,687	(^a)	(^a)	(^a)	(^a)
1921.	.....	b 2	.....	2	(^a)	(^a)	(^a)	(^a)	(^c) 8	1,052	595	465

No data

^b Two Americans (never vaccinated) arrived in Manila already sick, on December, 1921, from Shanghai and San Francisco respectively.

^c No deaths among these eight cases in persons positively vaccinated and these 592 deaths in Mindanao were all in persons not vaccinated.

MISCELLANEOUS

INSPECTOR PABLO DE LOS REYES KILLED

According to the telegram received from Dr. Hernando, Chief, Division of Mindanao and Sulu, Sanitary Inspector Pablo de los Reyes, stationed at Jolo, was killed by a Moro who ran amuck on the first instant.

One patient from Culion, who had taken the crude chaulmoogra oil treatment by mouth, was paroled this month after completing his six months' quarantine.

DECOMPOSED FOOD

In a Tondo refreshment parlor, the sanitary inspectors discovered decomposed pies intended for sale to the public. As happens in cases like this, the pie was confiscated and condemned, and the owner of the establishment was sued before the Municipal Court. It is to the interest of all concerned, if cases like the foregoing are discovered, to report to the nearest health station for proper action, and thus the public health will be safeguarded against unscrupulous vendors, owners of refreshment parlors, *carinderias*, restaurants, and other public eating-places.

MEDICAL INSPECTION IN POLILLO

While the medical inspection of the municipality of Polillo is not done with the frequency and regularity as is done in other municipalities, on account of the difficulty of transportation facilities, still we have it on record that on July 1, 1921, Dr. Eugenio Hernando, then Chief, Division of Provincial Sanitation, Colonel Ramos of the Constabulary, and the District Health Officer for Tayabas, Medical Inspector Eufemio Jara, made a thorough inspection of the municipality; and on the day following the municipalities of Baler and Casiguran were also inspected.

The President of the Sanitary Division, with residence in Infanta, made his last inspection trip to Polillo on May 10, 1922.

THE PHILIPPINE HEALTH SERVICE AND THE ROCKEFELLER FOUNDATION

"Results that have attracted attention throughout the world have been accomplished by the health workers in the Philippines, and it is, therefore, a special pleasure to me that the Rockefeller Foundation has been privileged to coöperate for the betterment of the Philippine health conditions in the future." (Excerpt from a recent letter of Dr. Victor G. Heiser, Director for the East of the Rockefeller Foundation and a former Director of the Bureau of Health.)

**THE WOMEN'S MEDICAL ASSOCIATION AND THE PHILIPPINE
HEALTH SERVICE**

The Women's Medical Association, one of whose aims is the improvement of the sanitary conditions in the Islands, in its last meeting approved the following suggestion:

"That every proprietor or house occupant, in those provinces where there are neither the sewer nor the Antipolo system of sewage disposal, be required to dig pits for the disposal of human excreta instead of allowing the pigs to act as scavengers, such pits to conform with the sanitary requirements of the Philippine Health Service as to location, construction, and maintenance. Also that each municipality be required to construct at least one sanitary shallow well in the central part of such towns where artesian, spring, or other potable water is not available, such shallow well to conform with the sanitary requirements of the Philippine Health Service as to location, construction, and maintenance. Such well, if available, will furnish drinking water to the community and the water of open shallow wells may be used for laundry and cleaning purposes."

Much work along this line is being accomplished throughout the provinces; but until the Proposed Sanitary Code is enacted by the Legislature into a law, no great progress will be made.

GENERAL STATISTICS

(Unless otherwise stated these statistics are for the month of June, 1922)

ESTIMATED POPULATION OF THE CITY OF MANILA FOR 1922¹

BY NATIONALITIES

Nationality.	Population.
Americans.....	3,134
Filipinos.....	278,497
Spaniards.....	1,955
Other Europeans.....	1,126
Chinese.....	17,856
All others.....	2,186
Total.....	299,754

BY DISTRICTS

Health districts.	Population.
No. 1, Intramuros.....	86,856
No. 2, Meisic.....	102,673
No. 4, Sampaloc.....	48,651
No. 5, Tondo.....	79,477
No. 6, Paco.....	32,097
Total.....	299,754

¹ Estimated on the basis of last figures published by the Census Office.

METEOROLOGICAL REPORT FOR MANILA CENTRAL OBSERVATORY DEDUCED FROM HOURLY OBSERVATIONS, JUNE, 1922

Date.	Pressure ¹ mean.	Temperature.				Relative humidity.							
		In shade. ²			Underground.		Mean.	Daily mean maximum.	Day.	Daily mean minimum.	Day.		
		Mean.	Absolute maximum.	Day.	0.50 m.								
					8 a. m. mean.	2 p. m. mean.							
												°C.	°C.
1-10.....	mm. 756.84	°C. 27.7	°C. 35.2	3 14 28	Absolute minimum.	°C. 24.1 24.0 23.6	9 11 25	°C. 31.2 31.3 31.2	°C. 31.3 31.4 31.4	Per cent. 81.5 79.3 83.3	9 20 30	Per cent. 75.8 72.9 78.2	7 14 28
11-20.....	57.58	28.4	34.9										
21-30.....	57.74	27.5	34.6										
Date.	Prevailing direction.	Wind.			Atmidometer ² (open air).			Sunshine.		Rainfall.			
		Total.	Velocity.		Day.	Total.	Daily maximum.	Day.	Total.	Rainy days.			
			Daily total maximum.	Day.									
											Km.	Day.	
													mm.	Day.
1-10.....	SW	Km. 2,269.5	8	mm. 30.7	6	h. m. 42 50	h. m. 8 40	mm. 91.9	2	7			
11-20.....	SE quad.	2,020.5	17	40.6	14	78 25	9 20	31.7	14	7			
21-30.....	E quad	1,406.0	29	28.4	28	46 05	8 55	22.0	28	7			

¹ Corrected for instrumental error and for temperature and reduced to sea level. Correction to standard gravity, — 1.72 mm.² These values are taken from instrument mounted in the Observatory Park, 1.5 meters above ground.

BIRTHS REPORTED IN THE CITY OF MANILA

[Stillbirths not included]

Nationality.	Male.	Female.	Total.	Annual birth rate per 1,000.
Americans.....	6	4	10	38.85
Filipinos.....	475	468	943	41.98
Spaniards.....	1	2	3	18.68
Other Europeans.....	3	3	6	64.87
Chinese.....	17	23	40	27.27
All others.....	4	.....	4	22.28
Total.....	506	500	1,006	40.86

BIRTHS, BY DISTRICTS

Health districts.	Legitimates.			Illegitimates.			Grand total.	Annual birth rate per 1,000.
	Male.	Female.	Total.	Male.	Female.	Total.		
No. 1, Intramuros.....	81	99	180	8	4	12	192	63.42
No. 2, Melsic.....	91	78	169	6	10	16	185	21.94
No. 4, Sampaloc.....	78	81	159	5	8	13	172	48.04
No. 5, Tondo.....	175	146	321	13	8	21	342	52.39
No. 6, Paco.....	44	59	103	5	7	12	115	48.62
Total.....	469	463	932	37	37	74	1,006	40.86

Number of births attended by physicians, living, 280; stillbirths, 26.

Number of births attended by midwife, living, 108; stillbirths, 0.

Number of births attended by family, living, 623; stillbirths, 16.

NUMBER OF DEATHS AND DEATH RATE PER 1,000 AMONG RESIDENTS IN THE CITY OF MANILA, BY NATIONALITIES

[Stillbirths not included]

Nationality.	Male.	Female.	Total.	Annual death rate per 1,000.
Americans.....	1	2	3	11.65
Filipinos.....	308	278	586	26.09
Spaniards.....	3	.....	3	18.68
Other Europeans.....	4	1	5	54.06
Chinese.....	14	3	17	11.59
All others.....	1	.....	1	5.56
Total and average.....	331	284	615	24.98

TOTAL DEATHS BY SOCIAL CONDITION, INCLUDING TRANSIENTS

Social condition.	Male.	Female.
Married.....	107	80
Divorced.....	.....	.....
Widowed.....	24	44
Single.....	271	202
Conditions not stated.....	8	1
Total.....	405	327
Grand total.....	732	

Stillbirths.....	42
Number of deaths with medical attendance.....	402
Number of deaths without medical attendance.....	330

DEATHS BY AGES IN THE CITY OF MANILA

[Stillbirths not included]

Ages.	Residents.		Transients.		Total.
	Male.	Female.	Male.	Female.	
Under 30 days.....	36	28			64
30 days to under 1 year.....	67	51	17	12	147
1 year to under 2 years.....	33	30	7	4	74
2 years to 4 years.....	26	32	2	3	63
5 years to 9 years.....	5	11		1	17
10 years to 14 years.....	7	6	1	1	15
15 years to 19 years.....	14	8	4	1	27
20 years to 29 years.....	35	30	20	6	91
30 years to 39 years.....	27	20	6	7	60
40 years to 49 years.....	24	16	7	7	54
50 years to 59 years.....	24	15	1		40
60 years to 69 years.....	14	17	4		35
70 years to 79 years.....	9	9	1	1	20
80 years to 89 years.....	8	5	2		15
90 years to 99 years.....	1	6			7
100 years and over.....	1				1
Age not stated.....					
Total.....	331	284	72	43	730

NOTE.—Two (2) Filipino males of 50 and 17 years of age, permanent residence unknown, not included in this table.

DEATHS AND DEATH RATE PER 1,000, BY DISTRICTS, INCLUDING TRANSIENTS

[Stillbirths not included]

Health districts.	Deaths.	Annual death rate per 1,000.
No. 1, Intramuros.....	121	39.97
No. 2, Meisic.....	104	12.33
No. 4, Sampaloc.....	104	26.03
No. 5, Tondo.....	327	50.09
No. 6, Paco.....	76	28.83
Total.....	732	29.73

NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG RESIDENTS IN THE CITY OF MANILA

[Stillbirths not included]

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
I. General diseases.													
1. Typhoid fever.....			18	11									31
4. Malaria.....			3	2			2						8
6. Measles.....			1	5									3
14. Dysentery.....			9	3									14
17. Leprosy.....			3	5									3
20. Purulent infection and septicæmia.....		1	1	1									7
22. Anthrax.....			1	2									1
24. Tetanus.....			3	2									5
27. Beriberi.....			1							1			2
27a. Beriberi infantile.....			24	16									40
28. Tuberculosis of the lungs.....			62	58						7	1		128
30. Tuberculous meningitis.....			4	4									8
31. Abdominal tuberculosis.....			8	2									10
34. Tuberculosis of other organs.....			1	2									3
36. Rickets.....				2						2			2
37. Syphilis.....				2									2
42. Cancer and other malignant tumors of the female genital organs.....				2									1
44. Cancer and other malignant tumors of the skin.....				2									2
45. Cancer and other malignant tumors of other organs or of organs not specified.....				1									2
47. Acute articular rheumatism.....			1	1									2
51. Exophthalmic goitre.....				1									1
53. Leuchæmia.....				2									2
55. Other general diseases.....													
II. Diseases of the nervous system and of the organs of special sense.													
61. Simple meningitis:													28
(1) Simple meningitis.....													28
64. Cerebral hemorrhage, apoplexy.....			12	15									27
66. Paralysis without specified cause.....			4	5						1			9
68. Other forms of mental alienation.....			2	1									3
71. Convulsions of infants (under 5 years of age).....			1	1									2

NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG RESIDENTS IN THE CITY OF MANILA—Continued

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
III. Diseases of the circulatory system.													
78. Aortic endocarditis.			1	7									1
79. Organic diseases of the heart.			4	1									13
80. Angina pectoris.													1
81. Diseases of the arteries, aneurysm, etc.													1
84. Diseases of the lymphatic system (lymphangitis, etc.)			1										1
IV. Diseases of the respiratory system.													
89. Acute bronchitis.			21	16									39
90. Chronic bronchitis.			8	5									13
91. Broncho-pneumonia.			17	16									34
92. Pneumonia.			5	1									6
94. Pulmonary congestion, pulmonary apoplexy			1										1
96. Gangrene of the lungs			2										2
V. Diseases of the digestive system.													
100. Diseases of the pharynx.			1	19									1
104. Diarrhoea and enteritis (under 2 years)			21	3									40
105. Diarrhoea and enteritis (2 years and over)			7	2									10
107. Intestinal parasites.													2
108. Appendicitis and typhlitis.			1					1					2
109. Hernias, intestinal obstructions			1										1
111. Acute yellow atrophy of the liver.			1										1
113. Cirrhosis of the liver.			2										2
115. Other diseases of the liver.				3									3
117. Simple peritonitis (nonpuerperal).				1									2
VI. Nonvenereal diseases of the genito-urinary system and annexa.													
119. Acute nephritis.			3	5									8
120. Bright's disease.		1	8	12									21
130. Other diseases of the uterus.				1									1
VII. The puerperal state.													
135. Puerpera hæmorrhage.													1
137. Puerperal septicæmia													2
138. Puerperal albuminuria and convulsions.													1

INFANT MORTALITY

Causes of death.	Under 24 hours.	24 hours to under 36 hours.	36 hours to under 48 hours.	48 hours to under 14 days.	14 days to under 1 year.	Total.
14. Dysentery.....					2	2
20. Purulent infection and septicæmia.....					1	1
24. Tetanus.....				3		3
27a. Beriberi infantile.....				5	44	49
28. Tuberculosis of the lungs.....					1	1
30. Tuberculous meningitis.....					1	1
34. Tuberculosis of other organs.....					1	1
36. Rickets.....					2	2
55. Other general diseases.....					1	1
61. Simple meningitis:						
(1) Simple meningitis.....					6	6
71. Convulsions of infants.....					2	2
84. Diseases of the lymphatic system (lymphangitis, etc.).....	1					1
89. Acute bronchitis.....					26	26
90. Chronic bronchitis.....					3	3
91. Broncho-pneumonia.....					16	16
94. Pulmonary congestion, pulmonary apoplexy.....		1				1
104. Diarrhoea and enteritis.....					32	32
119. Acute nephritis.....					1	1
120. Bright's diseases.....					1	1
143. Furuncle.....					1	1
151. Congenital debility, icterus, and scler- ema:						
(1) Premature birth (not still born).....	4	2	1	1		8
(2) Congenital debility.....	9	4		18	14	45
152. Other causes peculiar to early infancy:						
(2) Other causes peculiar to early infancy.....	2			2	3	7
Total.....	16	7	1	29	158	211

ANTI-PLAGUE CAMPAIGN IN THE CITY OF MANILA

Number of spring traps set.....	20,784
Number of rats caught with spring traps.....	4,464
Number of wire traps set.....	
Number of rats caught by wire traps.....	20,433
Number and kind of baits (coconuts).....	39,623
Number of poison portions placed.....	1,063
Number of rats found poisoned.....	1,458
Number of rats killed by clubs and other weapons.....	599
Number of rats found dead from other causes.....	7,584
Total number of rats otherwise caught, found dead or killed.....	7,584
Total number of rats sent to laboratory for examination.....	7,584
Total number of rats found positive for plague.....	0

**TYPHOID AND PARATYPHOID FEVER REPORTED DURING THE MONTH OF
JUNE, 1922, CITY OF MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Living:											
Male.....	8	0	18	2	12	0	12	7	9	0	68
Female.....	3	0	6	3	2	0	10	0	5	0	29
Dead:											
Male.....	0	1	1	0	0	1	0	0	0	0	3
Female.....	0	0	0	2	1	0	0	1	0	0	4
Total:											
Male.....	8	1	19	2	12	1	12	7	9	0	71
Female.....	3	0	6	5	3	0	10	1	5	0	33
Grand total..	11	1	25	7	15	1	22	8	14	0	104

DEATHS

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Male	0	1	3	2	4	0	5	1	2	0	18
Female	0	0	4	3	2	0	3	0	1	0	13
Total	0	1	7	5	6	0	8	1	3	0	31

Total cases reported within the month.....	139
Provincial cases reported in the City of Manila.....	31
Foreign cases reported in the City of Manila.....	0
City cases reported (residents only).....	108
Total deaths reported within the month.....	37
Deaths among provincial cases reported in Manila.....	6
Deaths among foreign cases reported in Manila.....	0
Deaths among city cases.....	31
Total cases confirmed as typhoid fever.....	126
Widal reaction.....	35
Feces.....	0
Blood culture.....	0
Autopsy.....	0
Clinically positive.....	91
Cases confirmed as paratyphoid fever (stool examination).....	5
Cases not confirmed.....	8
Paratyphoid fever ¹	<div> <div></div> <div>Province—2 Cases, 0 Deaths.</div> <div>City—3 Cases, 0 Deaths.</div> </div>

¹ All are included in the above table.

**DYSENTERIES REPORTED DURING THE MONTH OF JUNE, 1922, CITY OF
MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Living:											
Male	2	0	2	0	0	1	2	0	0	0	7
Female	0	0	0	0	1	2	0	0	0	0	3
Dead:											
Male	0	0	0	0	1	4	0	2	0	0	7
Female	0	0	0	0	1	3	0	1	0	1	6
Total:											
Male	2	0	2	0	1	5	2	2	0	0	14
Female	0	0	0	0	2	5	0	1	0	1	9
Grand total..	2	0	2	0	3	10	2	3	0	1	23

DEATHS

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Male	0	0	0	0	1	5	0	2	0	0	8
Female.....	0	0	0	0	1	3	0	1	0	1	6
Total.....	0	0	0	0	2	8	0	3	0	1	14

Total cases reported within the month.....	29
Provincial cases reported in the City of Manila.....	6
City cases reported (residents only).....	23
Total deaths reported within the month.....	18
Deaths among provincial cases reported in the City of Manila.....	4
Deaths among city cases.....	14
Reported as:	
Amoebic dysentery.....	0
Acute dysentery.....	6
Bacillary dysentery.....	6
Chronic dysentery.....	0
Dysentery	17
Erroneously reported as dysentery.....	0
Total	29

Dysentery carriers—None.

**CONFIRMED CHOLERA CASES REPORTED DURING THE MONTH OF JUNE,
1922, CITY OF MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Living:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Grand total..	0	0	0	0	0	0	0	0	0	0	0

DEATHS

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total.....	0	0	0	0	0	0	0	0	0	0	0

Total cases reported within the month.....	8
Provincial cases reported in the City of Manila.....	1
Foreign cases reported in the City of Manila.....	0
City cases reported (residents only).....	7
City cases confirmed as cholera.....	0
City cases not confirmed (found negative).....	7
Total deaths reported within the month.....	0
Deaths among provincial cases reported in Manila (not confirmed).....	0
Deaths among foreign cases reported in the city of Manila.....	0
City deaths confirmed as cholera.....	0
City deaths not confirmed.....	0

Cholera carriers—7, living ; 0, Dead bodies.

**DIPHTHERIA REPORTED IN THE CITY OF MANILA, DURING THE MONTH OF
JUNE, 1922, RESIDENTS ONLY**

CASES

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	
Living:											
Male.....	0	0	1	0	1	0	0	0	0	0	2
Female.....	0	0	0	0	0	0	0	0	1	0	1
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total:											
Male.....	0	0	1	0	1	0	0	0	0	0	2
Female.....	0	0	0	0	0	0	0	0	1	0	1
Grand total..	0	0	1	0	1	0	0	0	1	0	3

DEATHS

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total.....	0	0	0	0	0	0	0	0	0	0	0

Total cases reported within the month.....	5
Provincial cases reported in Manila.....	0
City cases reported (residents only).....	5
City cases confirmed as diphtheria.....	3
City cases not confirmed.....	2
Total deaths reported within the month.....	0
City deaths confirmed as diphtheria.....	0
City deaths not confirmed.....	0
Deaths among provincial cases reported in Manila.....	0

Diphtheria carriers—None.

NOTE

Through typographical error there appears to have occurred 3 cases of smallpox in the month of May among non-residents in the City of Manila whereas in fact not a single case occurred. (See p. 163, Vol. II, No. 5.)

**OTHER COMMUNICABLE DISEASES REPORTED IN THE CITY OF MANILA,
DURING THE MONTH OF JUNE, 1922**

RESIDENTS

Diseases.	Cases.	Deaths.
Malaria	5	3
Varicella	0	0
Varicella	4	0
Smallpox	0	0
Measles	13	3
Whooping cough	0	0
Influenza	18	0
Bubonic plague	0	0
Beriberi	2	2
Beriberi, infantile	40	40
Pulmonary tuberculosis	134	128
Tuberculosis of other organs	19	19

NON-RESIDENTS

Diseases.	Cases.	Deaths.
Malaria	3	1
Varicella	0	0
Varicella	0	0
Smallpox	0	0
Measles ¹	3	0
Whooping cough	0	0
Influenza	5	2
Bubonic plague ²	1	1
Beriberi	2	2
Beriberi, infantile	9	9
Pulmonary tuberculosis ³	16	8
Tuberculosis of other organs	5	5

(1) Including one foreign case.

(2) Chinaman brought by steamship *Taisan* from Amoy, China.

(3) Including one case and one death, permanent residence, unknown.

REPORT ON THE DISTRIBUTION OF ASSORTED SERA AND VACCINES

Sera and vaccines.	On hand June 1, 1922.	Received during the month.	Total to be accounted for.	Dis- tributed during the month.	Remain- ing at the end of the month.
Anti-diphtheric serum (units)					
Anti-dysenteric serum (ampoules)	8		8		8
Anti-tetanic serum (units)		600,000	600,000	600,000	
Cholera vaccine (c.c.)	510	15,480	15,990	15,090	900
Dried vaccine virus (units)	20,500	19,950	40,450	13,000	27,450
Fresh vaccine virus (units)	77,900	250,000	327,900	225,800	102,100
Gonococcus vaccine (ampoules)		200	200	200	
Mixed typhoid and cholera vaccine (c.c.)		121,930	121,930	120,560	1,370
Normal horse serum (ampoules)		10	10	10	
Typhoid and paratyphoid vaccine (c.c.)		8,450	8,450	3,910	4,540
Plague vaccine (ampoules)		30	30	30	

**SMALLPOX VACCINATIONS IN THE CITY OF MANILA, DURING THE MONTH OF
JUNE, 1922**

Health districts.	Total vaccina- tions.	Total inspec- tions.	Positive.	Negative.
No. 1, Intramuros	1,886	256	196	60
No. 2, Meisic	4,110	552	405	147
No. 4, Sampaloc	2,169	366	278	88
No. 5, Tondo	959	668	493	175
No. 6, Paco	502	230	168	62
Total	9,626	2,072	1,540	532

CONSOLIDATED CHOLERA VACCINATIONS FOR THE MONTH OF JUNE IN THE CITY OF MANILA

Districts.	Number of persons vaccinated.								Total.
	Males.				Females.				
	Single injections.		Double injections.		Single injections.		Double injections.		
	A.	C.	A.	C.	A.	C.	A.	C.	
No. 1, Intramuros.....									
No. 2, Meisic.....									
No. 4, Sampaloc.....	2	1			5	1			9
No. 5, Tondo.....									
No. 6, Paco.....									
Total.....	2	1			5	1			9

NOTE.—A, means adults ; C, children.

CONSOLIDATED TYPHOID AND CHOLERA VACCINATIONS IN THE CITY OF MANILA FOR THE MONTH OF JUNE, 1922

Districts.	Number of persons vaccinated.					
	Males.					
	Single injections.		Double injections.		Triple injections.	
	A.	C.	A.	C.	A.	C.
No. 1, Intramuros.....	617	72	188	25		
No. 2, Meisic.....	1,583	3,725	1,360	1,655		
No. 4, Sampaloc.....	1,531	1,444	299	308		
No. 5, Tondo.....	230	633	96	47		3
No. 6, Paco.....	233	458	103	191	42	37
Total.....	4,194	6,332	2,046	2,226	42	40

Districts.	Number of persons vaccinated.						Total injections.		
	Females.								
	Single injections.		Double injections.		Triple injections.				
	A.	C.	A.	C.	A.	C.			
No. 1, Intramuros.....	318	62	142	79			1,069	434	
No. 2, Meisic.....	1,301	2,248	1,415	1,780			8,857	6,210	
No. 4, Sampaloc.....	1,488	1,323	437	414			5,786	1,458	
No. 5, Tondo.....	257	588	143	48	1		1,708	334	4
No. 6, Paco.....	339	294	92	89	45	57	1,324	475	181
Total.....	3,703	4,515	2,229	2,410	46	57	18,744	8,911	185

NOTE.—A, means adults ; C, children.

TOTAL VACCINATIONS OF SMALLPOX IN THE PROVINCES FOR THE YEAR 1922

Provinces.	Vaccinations.	Inspections.	Positive.	Negative.
Abra.....	5,560	5,207	3,488	1,719
Agusan.....	4,557	2,104	1,042	1,062
Albay.....	52,337	40,809	26,892	18,917
Antique.....	6,818	6,483	4,461	2,022
Bataan.....	6,921	6,771	5,387	1,384
Batangas.....	28,879	13,641	10,059	3,582
Bohol.....	22,959	18,041	11,424	6,617
Bukidnon.....	455	346	132	214
Bulacan.....	20,283	13,442	9,976	3,466
Cagayan.....	11,045	6,971	4,115	2,856
Camarines Norte.....	1,422	1,201	795	406
Camarines Sur.....	21,383	15,317	11,035	4,282
Capiz.....	22,348	20,620	15,700	4,920
Catanduanes.....	46,176	30,846	20,141	10,705
Cavite.....	9,806	9,345	6,449	2,896
Cebu.....	83,671	60,292	33,208	27,084
Cotabato.....	7,266	3,537	737	2,800
Culion Leper Colony.....	327	327	121	206
Davao.....	3,706	3,460	2,310	1,150
Ilocos Norte.....	10,685	9,141	4,024	5,117
Ilocos Sur.....	28,332	19,433	12,607	6,826
Iloilo.....	39,981	24,659	18,754	5,905
Isabela.....	4,778	3,493	1,341	2,152
Laguna.....	10,947	7,939	5,300	2,639
La Union.....	10,082	7,730	3,492	4,288
Lanao.....	817	1,152	768	384
Leyte.....	77,455	16,151	33,822	12,329
Marinduque.....	8,373	6,645	4,268	2,377
Masbate.....	4,284	195	126	69
Mindoro.....	8,254	6,690	4,123	2,567
Misamis.....	4,725	2,014	1,240	774
Mountain Province.....	10,404	5,873	4,112	1,761
Nueva Ecija.....	91,254	61,068	33,646	27,422
Nueva Vizcaya.....	1,378	1,327	1,036	291
Occidental Negros.....	18,598	13,303	7,603	5,700
Oriental Negros.....	24,272	14,082	9,690	4,392
Palawan.....	500	490	248	242
Pampanga.....	10,386	6,324	4,604	1,720
Pangasinan.....	98,033	83,099	40,821	42,278
Rizal.....	26,921	22,616	13,953	8,663
Romblon.....	7,825	5,832	3,814	2,018
Samar.....	12,429	7,392	4,137	3,255
Sulu.....	1,221	1,049	457	592
Surigao.....	8,974	7,464	4,322	3,142
Tarlac.....	4,248	3,989	2,593	1,396
Tayabas.....	18,374	15,792	10,232	5,560
Zambales.....	5,665	5,451	3,826	1,625
Zamboanga.....	4,222	2,871	1,587	1,284
Total.....	908,836	651,924	408,918	248,006

¹ Compilation of reports received since January.

Other reports not yet received.

**CONSOLIDATED CHOLERA VACCINATIONS REPORTED IN THE PROVINCES SINCE
JANUARY, 1922¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Abra.....	282	1,153	1,435
Albay.....	13,608	7,903	21,511
Antique.....	3,750	2,851	6,601
Bataan.....	831	447	1,278
Bohol.....	1,189	979	2,168
Bulacan.....	8,268	6,505	14,773
Cagayan.....	5,158	4,207	9,365
Camarines Norte.....	739	94	833
Capiz.....	3,086	1,399	4,485
Catanduanes.....	654	430	1,084
Cavite.....	7,104	4,192	11,296
Cebu.....	3,662	1,694	5,256
Cotabato.....	412	110	522
Davao.....	62	30	92
Ilocos Norte.....	403	666	1,069
Ilocos Sur.....	3,736	2,722	6,458
Iloilo.....	972	1,178	2,150
Laguna.....	4,866	7,384	12,250
La Union.....	3,854	2,564	6,418
Leyte.....	1,143	567	1,710
Marinduque.....	550	363	913
Mindoro.....	1,650	647	2,297
Misamis.....	900	520	1,420
Nueva Ecija.....	1,520	1,476	2,996
Nueva Vizcaya.....	676	949	1,625
Oriental Negros.....	2,556	2,044	4,600
Pampanga.....	4,120	3,649	7,769
Pangasinan.....	4,859	3,661	8,520
Rizal.....	19,623	11,173	30,796
Romblon.....	514	103	617
Sorsogon.....	1,310	703	2,015
Sulu.....	913	159	1,072
Tarlac.....	654	355	1,009
Tayabas.....	2,295	318	2,613
Zambales.....	2,159	1,891	4,050
Zamboanga.....	1,230	1,121	2,351
Total.....	109,208	76,207	185,415

¹ Compilation of reports received.

Other reports not yet received.

**CONSOLIDATED TYPHOID VACCINATIONS REPORTED IN THE PROVINCES SINCE
JANUARY, 1922¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Cavite.....	36	11	47
Davao.....	3	0	3
Ilocos Sur.....	1,002	851	1,853
Laguna.....	2,885	2,115	5,000
La Union.....	408	110	518
Pangasinan.....	907	231	1,138
Total.....	5,241	3,318	8,559

¹ Compilation of reports received since January.

Other reports not yet received.

**CONSOLIDATED TYPHOID AND CHOLERA VACCINATIONS REPORTED
IN THE PROVINCES SINCE JANUARY, 1922¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Abra.....	202	80	282
Cagayan.....	906	484	1,340
Capiz.....	249	106	355
Cavite.....	438	339	772
Cebu.....	1,119	193	1,312
Davao.....	311	113	424
Ilocos Norte.....	2,421	1,469	3,890
Ilocos Sur.....	4,625	1,856	6,481
Iloilo.....	2,677	1,284	3,911
Isabela.....	197	70	267
La Union.....	3,859	1,847	5,706
Lanao.....	872	897	1,769
Leyte.....	184	99	283
Marinduque.....	100	50	150
Nueva Ecija.....	474	128	602
Nueva Vizcaya.....	363	232	595
Pampanga.....	3,945	2,163	6,108
Pangasinan.....	1,580	540	2,120
Rizal.....	8,867	827	9,694
Surigao.....	488	235	723
Tayabas.....	1,799	.....	1,799
Zamboanga.....	385	185	520
Total.....	35,956	13,097	49,053

¹ Compilation of reports received.

Other reports not yet received.

SMALLPOX REPORTED FROM THE PROVINCES, FOR THE MONTH OF JUNE, 1922

(No case; no death reported during the month)

**CHOLERA REPORTED FROM THE PROVINCES, RECEIVED DURING THE
MONTH OF JUNE, 1922**

Provinces and towns.	Cases.	Deaths.
Bataan:		
Balanga.....	1	.....
Batangas:		
Bauan.....	1	1
Bolbok.....	1	1
Cuenca.....	13	9
Laguna:		
Los Baños.....	1	.....
Marinduque:		
Mogpog.....	1	.....
Santa Cruz.....	2	2
Nueva Ecija:		
San Antonio.....	1	1
Pangasinan:		
Alaminos.....	1	.....
Sual.....	1	1
Rizal:		
San Juan del Monte.....	1	.....
Tarlac:		
Panique.....	1	1
Total.....	25	16



THE GOVERNMENT OF THE PHILIPPINE ISLANDS
DEPARTMENT OF PUBLIC INSTRUCTION

MONTHLY BULLETIN
OF THE
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VOL. II

JULY, 1922

No. 7

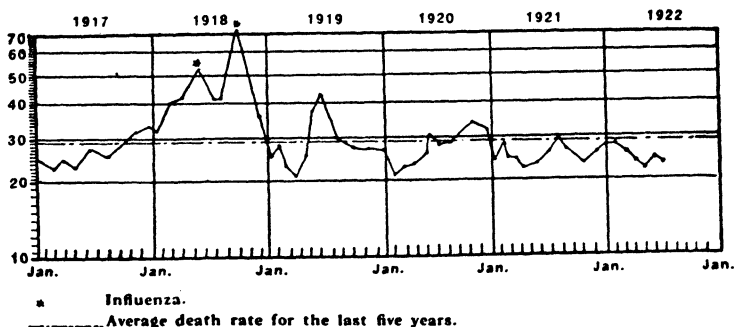
The keystone of a nation's progress is sanitation and education



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3. Heights and Weights of Ilocano Children.
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5. Miscellaneous News.
6. Vital Statistics.

ANNUAL DEATH RATES BY MONTH, CITY OF MANILA



MANILA
BUREAU OF PRINTING
1922

COMMITTEE ON THE MONTHLY BULLETIN, P. H. S.

S. V. DEL ROSARIO, *Assistant Director of Health, Chairman*
J. P. BANTUG, *Senior Medical Inspector, P. H. S., Member*
L. LOPEZ RIZAL, *Senior Medical Inspector, P. H. S., Member*
M. V. ARGUELLES, *Senior Surgeon, P. H. S., Secretary*

PROVIDE GOOD PURE WATER

1. Water is an essential element of diet. It makes up about 60 per cent of the entire body weight.
2. Water is the chief element of cleanliness.
3. Water regulates the body temperature and washes away waste matter from the tissues of the body.
4. To keep up in the best of health our body needs from one and a half to two liters of water daily.
5. Water from artesian wells, distilled water, rain water, water from springs, and well protected deep wells situated far from dwelling places are all good potable water.
6. When possible, don't obtain drinking water from streams, rivers, and shallow wells. If the purity of water is doubtful always boil it before use.
7. The source of disease germs in drinking water is nearly always the excretions and discharges from human beings who are either sick or are carriers of disease germs.
8. Boiling an impure water is the simplest and most efficient method of killing disease germs in it.
9. Infected water may also contain amoeba and the ova of various intestinal parasites.
10. Sewage polluted water is the chief source of epidemics of water-borne diseases such as dysentery, typhoid fever, and cholera.

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ON SOME PROBLEMS OF PROVINCIAL SANITATION

The scope of provincial sanitation, embracing that of a number of municipalities including their "barrios," covers a wide field of action in which the multiple problems arising from its adequate maintenance and development become, day by day, more complex. Obviously, to safeguard the health of the public, dependent in a large measure upon the proper application and enforcement of sanitary principles and laws, the activities of the Philippine Health Service directed toward, at least, minimizing the potentiality of factors or agencies which otherwise shall have been possible avenues of infection, must necessarily become more persistent to meet usual interferences and occasional lack of support.

Among those that need serious consideration in the provinces is the obtention of potable water for drinking. For, altho there are no records of very serious epidemics that had occurred subsequent or traceable to infection of a common water supply, yet the sporadic persistence of some water-borne diseases, as cholera, typhoid fever, and dysentery, may not perhaps, in part, adduce a reasonable explanation other than impurities or contamination, detrimental to health, of the water for drinking. However, statistics tend to show that the efforts of the Government in boring artesian wells in many places of the Archipelago have succeeded in reducing considerably these water-borne infections. The extension of this or any other adequate pure-water system to all regions, where sound water for drinking cannot be obtained, will be an ideal activity if moral and financial support will not be lacking.

Aside from that of water supply, the insanitary disposal of human and animal waste in the municipalities and "barrios"

is also a vital issue. The dangers from fecal contamination in the dissemination of infectious and parasitic diseases are obvious. Hence, the Antipolo system of closets has been established and enforced in almost all provinces. The gradual installation of such a system or its modifications, or of another sanitary method of waste disposal in many more houses in the provinces with moderate means is an encouragement and indication that, in the future, it may be extended to houses even in the "barrios." In fact, this method of waste disposal has been observed in some "barrio" homes, altho in the majority of instances the human excreta is still allowed for nature to take care of.

Rural sanitation must, therefore, deserve attention. Poverty, filth, destitution, dirty habits, unhygienic environmental and housing conditions are among such factors, existing in the "barrios," contributory to the development of the outbreak or progress of diseases. The establishment of "sanitary barrios," to take the place of those unsafe for human settlement, may be encouraged by popular support. The drainage of stagnant water, found in rural areas, may not only increase agricultural fertility but also help to diminish the mosquito-breeding places, and thereby reduce in part the incidence of malaria,—a disease that registered, in recent years, a great number of deaths and is perhaps partly responsible for our retarded economic advancement. Much is expected to be done along this line.

The people are now steadily becoming conscious of the prevention from infectious disease afforded by the use of vaccines and sera. The people are also aware, however, that ignorance, as in other countries, occasionally offers resistance and objections to the actual immunization process. But, it is believed, by intensive popular public health education, this and many others of our important public health problems will ultimately yield to speedy solution. The prevalence of beriberi in either its latent or active form among the common people should, with our present economic depression, direct more our efforts to educate the lower class regarding the nutritional value of vitamin-containing foods. Similarly, parasitic diseases may be lessened, in their incidence, by popular talks, demonstrations, pamphlets, and similar health propaganda.

The foregoing activities and many others would perhaps effectively accomplish more desired results, if our appropriations were to become more liberal. It has been, however, the practice in foreign countries to resort, in the lack of government support, to voluntary aids from private institutions and organizations,

individual grants and donations. On the other hand, in the United States, 10.34% of the rural population are protected with a health service under the direction of *whole-time* county (or district) health officers (Public Health Reports, July 21, 1922, XXXVII, 29, 1794-1799). With our present means, therefore, more sacrifice is called for to improve and develop our provincial sanitation. But we cannot become unmindful of the fact that rapid progress in the prevention of diseases and the promotion of health can be more successfully attained by liberal appropriations entrusted to the control of interested and suitable public health personnel.

WAYS TO IMPROVE STATUS OF HEALTH OFFICERS¹

TEOFILO CORPUS, M. D.

Medical Inspector, Philippine Health Service

I. QUALIFICATIONS OF HEALTH OFFICERS

Heretofore, unclassified health officers were chosen mostly from the recent medical graduates. These graduates have acquired their knowledge in public health during their schooling, of course, in a theoretical way. They have entered the health service which required of them a practical knowledge of the subject. Some have made a success, but a great number have fallen by the way side. At present, health officers before being permitted to do field work are detailed for sometime in some health stations where they are given instructions of their work. However, this is not sufficient. The classified health officers, who in most cases are taken as district officers, are chosen thru civil service examinations and this is the only advantage of this over the other. Even then not all of this class has acquired any training in public health.

It points out, then, that the qualifications of the health officers must be standardized. Certain regulations should be passed to require candidates for health officerships to qualify themselves by taking a public health course directed by the Philippine Health Service alone. This will also avoid the choice of men not qualified to hold office.

The following requirements similar to that adopted by the Public Health Council of New York, as herein partially quoted, are suggested to be the qualifications of the local health officers for appointment:

1. They shall be graduates of medicine of not less than three years' standing.

2. They shall, when appointed, be not less than 23 nor more than 65 years of age.

3. They shall have complied with one of the following requirements:

- (a) They shall have taken a correspondence course in public health of one year with at least one week of practical demonstrations in laboratory and field work, both correspondence course and demonstrations to be approved by the Director of Health with examinations and certificate; or
- (b) They shall have taken a course in public health of at least six weeks including practical laboratory and field work with lectures and reading at an educational institution, such course is to be approved by the Director of Health with examinations and certificate; or
- (c) They shall have submitted evidence satisfactory to the Director of Health of special training or practical experience in public health work, with examination if required; provided, however, that under special conditions any of these qualifications may be waived by said Director of Health.

Among the present existing force of the Philippine Health Service, it is suggested that the Presidents of the Sanitary Divisions be advised to take the correspondence course given by the University of Bellevue Hospital

¹ The opinions given in this article are the author's and he alone is responsible for them.

Medical College of the New York University since it is believed that a greater efficiency in the service could be obtained if these health officers could acquire special knowledge in sanitation as outlined in the correspondence course of said institution.

II. THE HEALTH OFFICERS AND POLITICS

Section 8, Rule XIII of Civil Service Rules, is quoted herein:

"No person in the Philippine Civil Service, classified or unclassified, permanent or temporary, shall take any active part in political management or in political campaign." But this does not seem to be the case in the present state of affairs. Many health officers belong to certain political factions—this is well and good. But there is a certain class which should be gotten rid of—those who are willing to sacrifice the health of a community in order to satisfy a political benefit. Health officers often fall the victims of this mistaken policy; and the community, of course, could not have the valuable service expected of them.

As Dr. Nicoll has once said, "if it be granted that health officers should be free from political interference, it is equally true that they themselves should perform their duties without regard to political or personal influence, and that they should in no account take part or use the prestige of their office in any partisan campaign. Wherever their sympathy lies, in their official acts they should remain absolutely neutral. The health officer who openly or privately works for the advancement of one political party or another is entitled to no sympathy," and it is better for him to resign.

This does not mean that the health officer should not be a politician. He is; but he plays politics only in so far as the carrying out of his work is concerned. This is his tact in administration. His political activities must only be confined to the conduct of his office; he must only strictly attend to his own business. This, of course, will meet the approval of the general public, and his work will go on smoothly, otherwise he only has to blame himself sooner or later.

III. THE HEALTH OFFICER AND THE PUBLIC

Of course, the feeling of the people towards a health officer will depend largely on the feeling which the people think the health officer has towards them. If he is gruff and dogmatic, the public will naturally have little use of him or his work. A good health officer is public spirited, and will do excellent work regardless of what his salary is. The people will always give him that respect and support when he shows them that his work is warranted.

The health officer must know how to deal with the multitude around him. He must know that connecting link between him and the other municipal authorities and the public as well, who are always keeping eye on him. He must exercise to them the so-called companionship. He must develop that instinct to serve. He trains himself to study the people, their customs and desiderata and to be always ready to satisfy them in so far as his official work is concerned.

Once this tact is done, the public will look upon the health officer as a friend, not an enemy. If they see that he executes his duty with a keen interest and activity, the people are always with him. If he gives much attention to the various functions required of him by law, the public will always have favorable impression of him.

HEIGHTS AND WEIGHTS OF ILOCANO CHILDREN

LUTHER PARKER

Division Superintendent of Schools

Thru the courtesy of the Chief of the Children's Bureau of the U. S. Department of Labor, the schools of Ilocos Norte were furnished with weighing and measuring cards for several thousand pupils. The table of heights and weights of children were found not to be applicable, so a study has been made during the year of the heights and weights of the school children of Ilocos Norte approximating in number 25,000.

This is believed to be the first study of its kind made on a large scale in the Philippine Islands and should serve as a guide to more extensive studies to ascertain the average heights and weights of Filipino children in general.

From the results of this study the heights and weights of the school children of Ilocos Norte have been ascertained with a fair degree of accuracy for ages ranging from 7 to 16, inclusive, both boys and girls.

The following table may now be used by teachers of Ilocos Norte schools in ascertaining whether their pupils are notably under weight or height for their ages in which cases steps should be taken to find a remedy and to bring the pupil up to the standard as far as is possible thru judicious exercise and close attention to health.

For purposes of comparison with American children who have been weighed and measured in large numbers, the American units of measure, inches and pounds, have been used:

TABLE OF HEIGHTS AND WEIGHTS OF CHILDREN

Age.	Ilocos Norte.				United States.				Difference.			
	Height in inches.		Weight in pounds.		Height in inches.		Weight in pounds.		Height in inches.		Weight in pounds.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
7 years.	42.64	41.43	39.70	39.61	45.70	45.50	49.10	47.50	3.06	4.07	9.40	7.89
8 years.	45.44	44.47	44.86	43.82	47.80	47.60	53.90	52.00	2.36	3.03	9.54	8.18
9 years.	46.56	46.91	50.01	47.10	49.70	49.40	59.20	57.00	3.14	2.49	9.19	10.00
10 years.	47.70	47.07	51.04	49.11	51.70	51.30	65.30	62.40	4.00	4.23	14.26	13.29
11 years.	49.63	48.99	54.76	53.40	53.80	53.40	70.20	68.80	3.67	4.41	15.44	15.40
12 years.	51.41	52.86	59.61	59.86	55.10	55.90	76.90	78.30	3.59	3.54	17.29	18.44
13 years.	54.51	54.72	65.42	65.37	57.20	58.20	84.80	88.70	2.69	3.48	19.38	23.83
14 years.	56.37	56.58	76.12	72.56	59.90	59.90	94.90	92.40	3.53	3.32	18.78	25.84
15 years.	59.19	58.82	79.86	79.28	62.30	61.10	107.10	106.10	3.11	2.28	27.24	26.82
16 years.	59.55	59.08	86.95	85.98	65.00	61.60	121.00	112.00	5.45	2.52	33.05	26.02

PERSONAL NEWS

Senior Medical Inspector Manuel Ma. Aycardo, having been relieved from temporary duty at Station No. 5, Tondo, has been directed to proceed to Batangas relieving Medical Inspector Felino Simpao as Acting District Health Officer for the 20th Health District, Batangas, whereupon Dr. Simpao will report to the Central Office for new assignment.

Dr. Hilario Lara having reported to the Central Office from the Province of La Union has been directed to go to Laguna to coöperate with Dr. Regino Padua in the campaign against malaria.

Mr. Generoso Quintero, Chief, Office of Property, has been directed to go to Culion for the purpose of conferring with the Culion authorities as to the arrangements that should be made for a more effective and prompt shipment of all the supplies needed by the Colony.

Nurse Leona Capultos of the San Lazaro Hospital and District Nurse Bartola Estoista of the Public Health Nursing have been directed to proceed to Camp Stotsenburg, Pampanga, and to report for duty to the Commanding Officer thereof, for one week beginning July 10th.

Nurse Teofista Agpaua of the San Lazaro Hospital has been directed to report to the Chief, Public Health Nursing, P. H. S., to assume the duties of District Nurse Bartola Estoista during the latter's assignment at Camp Stotsenburg.

For the purpose of unifying the work of vaccination against smallpox in the Philippine Islands, it has been ordered that all vaccination work against smallpox shall hereafter be under the control and supervision of the Section of Epidemiology, and Dr. Pedro Joven shall be the officer in charge of such work. He shall hereafter pertain to the Section of Epidemiology.

Sanitary Inspector Charles F. Brantigan has been directed to go to Aparri on the first available transportation and report to the President, Sanitary Division, Aparri, for the purpose of coöperating with the District Health Officer and the local health officers in instituting and enforcing energetic sanitary measures to place Aparri in satisfactory sanitary condition.

Dr. Sulpicio Chiyuto has been directed to assume charge temporarily of the Division of Mindanao and Sulu until further orders. Dr. Chiyuto will, accordingly, receive all property and papers pertaining to the Division from Dr. Eugenio Hernando, Chief of the Division.

Dr. Jose M. Raymundo has been relieved as Medical Officer in charge of Health Station No. 1, Intramuros, and directed to proceed as soon as possible to Butuan, Agusan, to assume the duties of District Health Officer for the 41st Health District, relieving Dr. Antonio Fernandez.

Dr. Antonio Fernandez, upon being relieved as District Health Officer of the 41st Health District, Agusan, by Dr. Jose M. Raymundo, will proceed to Malaybalay, Bukidnon, to assume the duties of District Health Officer for the 42nd Health District, relieving Dr. Antonio Rubin.

MISCELLANEOUS NOTES

MAGDALENA CLINIC

The special clinic at Magdalena, Laguna, which was opened some two weeks ago in connection with the malaria investigation which is being conducted in the municipality is attended by a large number of people, the average being about 50 patients a day. While not all of them are suffering from active malaria, it has been found that practically all of them, from infancy upward, have suffered, at sometime or other, from some form of the disease. Magdalena is the most heavily malaria-infected town in the whole Province of Laguna, and it has been found that one or more members of the family living in the *población* has or has had malaria at sometime or other.

The number of cases suffering from malaria has been reduced following the cleaning of the street ditches and the draining of stagnant water in the locality. The clinic has also rendered efficient service in this respect.

A LETTER OF APPRECIATION

The Secretary of the Public Health Department of Melbourne, Australia, in a recent letter to the Assistant Director of Health, expresses his obligations for the receipt of the Monthly Bulletin of the Philippine Health Service for November and December of 1921 and previous months.

EXAMINATION FOR CANDIDATES FOR ADMISSION TO THE SCHOOLS FOR SANITARY INSPECTORS

On July 5, 1922, from 9-12 a. m., a practical examination for candidates for admission to the school will be held at the Office of the Assistant Director of Health, Sta. Potenciana Building, Manila. A similar examination will be held on the 13th for the same purpose for all other candidates who shall not have arrived in time to take the first examination.

DENTAL WORK AMONG SCHOOLCHILDREN

Between June 12th and 22nd, 318 schoolchildren were referred to the Dentist of the American Red Cross by officers of the Philippine Health Service who were physically examined as a requisite for admission to our public schools. Of this total, 208 were males and 110 were females. Only 54 or 16 per cent have good teeth, 290 roots have to be extracted, 679 are the number of decayed teeth that have to be filled. Seventy-four or 23 per cent of these children are not having their teeth washed.

DR. DE JESUS ARRIVES WITH 16 NEGATIVES

Dr. De Jesus arrived July 14 with 16 negative lepers on board. At the meeting of the Committee on Leprosy Diagnosis on July 15 at San Lazaro Hospital these patients will be subjected to a thoro clinical and bacterioscopical examination and those found negative will be paroled on the condition to present themselves weekly before the Committee on Treatment for observation and continued medication.

THE SCHOOL FOR SANITARY INSPECTORS

The school for Sanitary Inspectors is a distinct entity from that of the School Health Nursing. The school for Sanitary Inspectors is intended to prepare men for public health work in the provinces as aids to health officers and admission to the school presupposes a high-school education. The School of Public Health Nursing is open only to graduate registered nurses who wish to take up this specialty.

PUBLIC HEALTH EDUCATION CONFERENCES AND LECTURES

Province	Date	No. of conferences	No. of municipalities	No. of barrios
Albay—except subprovince of Catanduanes	June 3 to 24	60	16	60
Tarlac—First Sanitary Di- vision	June 3 to 24	16	5	16
Fourth Sanitary Divi- sion	June 3 to 24	13	4	13
Fifth Sanitary Divi- sion	June 3 to 24	4	2	4

DR. JACOBO FAJARDO RETURNED

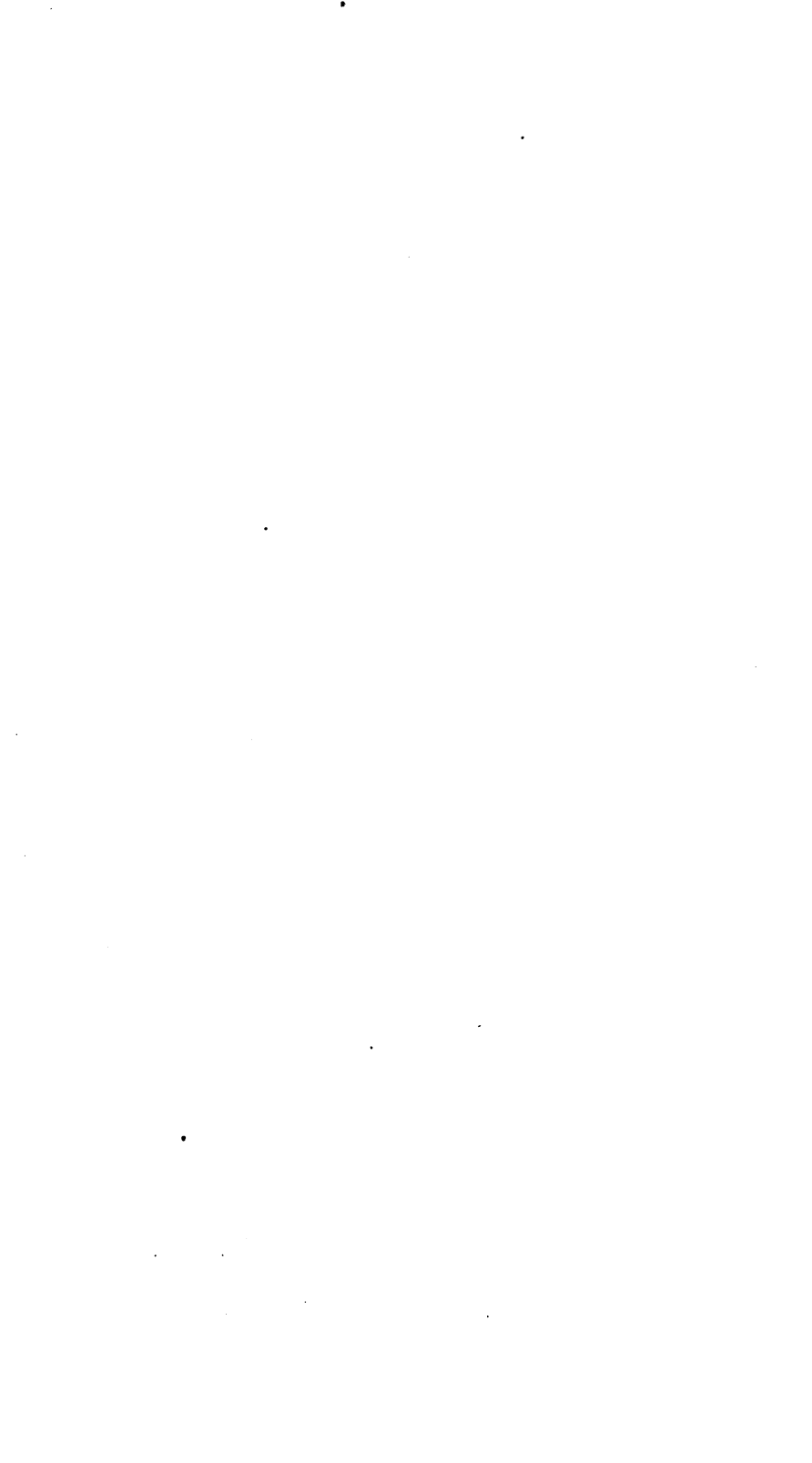
Dr. J. Fajardo, Chief, Division of Provincial Sanitation, returned July 27th, from his extended inspection trip in the Southern Islands. He formed part of the Vice-Governor's party. He brings good impression of the places visited.

"BASILAN" LEFT

The coast-guard cutter *Basilan* left July 6, 1922, with about 200 lepers on board. Dr. de Jesus in charge. Made collecting trip in the Visayan Islands.

SCHOOL FOR SANITARY INSPECTORS

One hundred and thirty candidates for admission to the School for Sanitary Inspectors. About 70 took the written examinations on July 5, 1922.



GENERAL STATISTICS

[Unless otherwise stated these statistics are for the month of July, 1922]

ESTIMATED POPULATION OF THE CITY OF MANILA FOR 1922¹

BY NATIONALITIES

Nationality.	Population.
Americans.....	3,184
Filipinos.....	273,497
Spaniards.....	1,955
Other Europeans.....	1,126
Chinese.....	17,866
All others.....	2,186
Total.....	299,754

BY DISTRICTS

Health districts.	Population.
No. 1, Intramuros.....	86,856
No. 2, Melsic.....	102,878
No. 4, Sampaloc.....	48,651
No. 5, Tondo.....	79,477
No. 6, Paco.....	82,097
Total.....	299,754

¹ Estimated on the basis of last figures published by the Census Office.

BIRTHS REPORTED IN THE CITY OF MANILA

[Stillbirths not included]

Nationality.	Male.	Female.	Total.	Annual birth rate per 1,000.
Americans.....	9	5	14	52.63
Filipinos.....	596	547	1,143	29.24
Spaniards.....	1	1	2	6.08
Other Europeans.....	4	5	9	94.17
Chinese.....	23	27	50	32.99
All others.....	1	4	5	26.95
Total.....	634	588	1,222	48.03

BIRTHS, BY DISTRICTS

Health districts.	Legitimates.			Illegitimates.			Grand total.	Annual birth rate per 1,000.
	Male.	Female.	Total.	Male.	Female.	Total.		
No. 1, Intramuros.....	116	87	203	4	7	11	214	68.41
No. 2, Meisic.....	87	92	179	6	4	10	189	21.69
No. 4, Sampaloc.....	80	108	188	5	7	12	195	47.22
No. 5, Tondo.....	228	205	433	18	10	28	461	68.84
No. 6, Paco.....	84	66	150	6	7	13	163	59.83
Total.....	595	553	1,148	39	35	74	1,222	48.03

Number of births attended by physician, living, 806; stillbirths, 22.

Number of births attended by midwife, living, 132; stillbirths, 1.

Number of births attended by family, living, 784; stillbirths, 16.

NUMBER OF DEATHS AND DEATH RATE PER 1,000 AMONG RESIDENTS IN THE CITY OF MANILA, BY NATIONALITIES

[Stillbirths not included]

Nationality.	Male.	Female.	Total.	Annual death rate per 1,000.
Americans.....	5	1	6	18.80
Filipinos.....	307	274	581	25.08
Spaniards.....	3	1	4	24.11
Other Europeans.....	1	1	2	10.46
Chinese.....	15	5	20	13.20
All others.....	5	1	6	32.84
Total and average.....	335	282	617	24.25

TOTAL DEATHS BY SOCIAL CONDITION, INCLUDING TRANSIENTS

Social condition.	Male.	Female.
Married.....	96	63
Divorced.....	1	1
Widowed.....	24	52
Single.....	284	208
Condition not stated.....	2	1
Total.....	407	318
Grand total.....	725	

Stillbirths, 40.

Number of deaths with medical attendance, 338.

Number of deaths without medical attendance, 387.

DEATHS BY AGES IN THE CITY OF MANILA

[Stillbirths not included]

Ages.	Residents.		Transients.		Total.
	Male.	Female.	Male.	Female.	
Under 30 days.....	43	34		1	78
30 days to under 1 year.....	77	56	9	8	150
1 year to under 2 years.....	36	32	5	2	75
2 years to 4 years.....	38	42	3	5	88
5 years to 9 years.....	12	6	2	2	22
10 years to 14 years.....	4		3	1	8
15 years to 19 years.....	13	7		1	21
20 years to 29 years.....	15	17	22	2	56
30 years to 39 years.....	14	19	9	6	48
40 years to 49 years.....	28	7	5	5	45
50 years to 59 years.....	19	12	6	2	39
60 years to 69 years.....	12	16	4		32
70 years to 79 years.....	14	10	2	1	27
80 years to 89 years.....	5	14			19
90 years to 99 years.....	3	8			11
100 years and over.....	2	2			4
Age not stated.....					
Total.....	335	282	70	36	723

One male Chinese about 40 years of age and one male Filipino of 23 years, permanent residence unknown, not included in this table.

DEATHS AND DEATH RATE PER 1,000, BY DISTRICTS, INCLUDING TRANSIENTS

[Stillbirths not included]

Health districts.	Deaths.	Annual death rate per 1,000.
No. 1, Intramuros.....	122	39.00
No. 2, Melsic.....	122	14.00
No. 4, Sampaloc.....	138	33.42
No. 5, Tondo.....	279	41.36
No. 6, Paco.....	64	23.49
Total.....	725	28.49

NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG RESIDENTS IN THE CITY OF MANILA

[Stillbirths not included]

221

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
I. General diseases.													
1. Typhoid fever.			7	6									13
4. Malaria.				1									1
9. Diphtheria and croup.			1	1									2
10. Influenza.			1	1									2
14. Dysentery.			13	9									24
18. Erysipelas.				1						1			1
20. Purulent infection and septicæmia.													1
23. Rabies.			2										2
24. Tetanus.													1
27. Beriberi.				1									1
27a. Beriberi infantile.			31	30									62
28. Tuberculosis of the lungs.			45	41						1			89
30. Tuberculous meningitis.			3	3						2			8
31. Abdominal tuberculosis.			1	3						1			5
35. Disseminated tuberculosis.			2										2
37. Syphilis.			1										1
40. Cancer and other malignant tumors of the stomach liver.				1									1
41. Cancer and other malignant tumors of the peritoneum, intestines, rectum.				1									1
42. Cancer and other malignant tumors of the female genital organs.				3									3
44. Cancer and other malignant tumors of the skin.			1										1
45. Cancer and other malignant tumors of other organs or of organs not specified.			1	1									2
II. Diseases of the nervous system and of the organs of special sense.													
61. Simple meningitis:													
(1) Simple meningitis.			4	9									13
(2) Cerebro-spinal meningitis (undefined).				1						1		2	16
(3) Cerebro-spinal fever.													2
64. Cerebral hemorrhage, apoplexy.			8										8
66. Paralysis without specified cause.			1							1			1
68. Other forms of mental alienation.			1	1									2
69. Epilepsy.			1										1

VII. The puerperal state.

134. Accidents of pregnancy 1
 135. Puerperal hemorrhage 1
 136. Puerperal albuminuria and convulsions 1
 137. Puerperal albuminuria and convulsions 1

VIII. Diseases of the skin and of the cellular tissue.

142. Gangrene 1
 143. Furuncle 2
 144. Acute abscess 1
 145. Other diseases of the skin and annexa 2
 146. Other diseases of the skin and annexa 2

X. Malformations.

150. Congenital malformations (stillbirths not included):
 (2) Congenital malformations of the heart 1
 (3) Other congenital malformations 1

XI. Diseases of early infancy.

151. Congenital debility, icterus, and sclerema:
 (1) Premature birth (not stillborn) 4
 (2) Congenital debility 34
 (3) Other diseases peculiar to early infancy 22
 152. Other diseases peculiar to early infancy:
 (2) Other causes peculiar to early infancy 1

XII. Old age.

154. Senility 10
 155. Senility 28

XIII. Affections caused by external causes.

167. Burns (conflagration excepted) 1
 169. Accidental drowning 1
 170. Traumatism by firearms 1
 175. Traumatism by other crushing (vehicles, railways, landalides, etc.) 1
 183. Homicide by cutting or piercing instruments 1
 186. Other external violence 1

XIV. Ill-defined diseases.

189. Cause of death not specified or ill defined 2
 190. Cause of death not specified or ill defined 1

Total.....	5	307	274	3	1	1	15	5	5	1	617
Grandtotal.....	5	581		4		1	20		6		617

NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG TRANSIENTS IN THE CITY OF MANILA

[Stillbirths not included]

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
I. General diseases.													
1. Typhoid fever.....				1								1	1
4. Malaria.....				1						1			1
14. Dysentery.....	1		3	2									6
17. Leprosy.....			1	1									2
18. Erysipelas.....				1									1
20. Purulent infection and septicæmia				1									1
22. Anthrax.....			1										1
24. Tetanus.....			1	1									2
27. Beriberi.....			1	1									2
27a. Beriberi infantile.....			2	1									3
28. Tuberculosis of the lungs.....			12	3						1			16
31. Abdominal tuberculosis.....			1	1									2
35. Disseminated tuberculosis.....			1	1									2
40. Cancer and other malignant tumors of the stomach, liver			2	1									3
41. Cancer and other malignant tumors of the peritoneum, intestines, rec-			1										1
tum.....													
45. Cancer and other malignant tumors of other organs or of organs			1										1
not specified.....													
II. Diseases of the nervous system and of the organs of special sense.													
61. Simple meningitis:			1	3									4
(1) Simple meningitis.....			1										1
68. Other forms of mental alienation.....													
III. Diseases of the circulatory system.													
79. Organic diseases of the heart.....			1	1									2
IV. Diseases of the respiratory system.													
87. Diseases of the larynx.....				1									1
89. Acute bronchitis.....			1										1
90. Chronic bronchitis.....			1	1									2
91. Broncho-pneumonia.....				3						1			4
92. Pneumonia.....			11										11

V. Diseases of the digestive system.

103. Other diseases of the stomach (cancer excepted)	1						1			1
104. Diarrhoea and enteritis (under 2 years)	7						4			11
105. Diarrhoea and enteritis (2 years and over)							2			2
108. Appendicitis and typhilitis	2						1			2
113. Cirrhosis of the liver	1						1			2
115. Other diseases of the liver	1						1			2

VI. Nonvenereal diseases of the genito-urinary system and annexa.

119. Acute nephritis							1			1
120. Bright's disease	1						1			2
128. Calculi of the urinary passages	1						1			2
131. Cysts and other tumors of the ovary							1			1

VII. The puerperal state.

135. Puerperal hemorrhage							1			1
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VIII. Diseases of the skin and of the cellular tissue.

144. Acute abscess	1								1	2
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XI. Diseases of early infancy.

151. Congenital debility, icterus and sclerema: (2) Congenital debility	1						3			4
--	---	--	--	--	--	--	---	--	--	---

XII. Old age.

154. Senility							1			1
---------------------	--	--	--	--	--	--	---	--	--	---

XIV. Ill-defined diseases.

189. Cause of death not specified or ill defined	1									1
--	---	--	--	--	--	--	--	--	--	---

Total.....

2	62	36	5	1	106
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Grand total.....

2	98	5	1	106
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INFANT MORTALITY

Causes of death.	Under 24 hours.	24 hours to under 36 hours.	36 hours to under 48 hours.	48 hours to under 14 days.	14 days to under 1 year.	Total.
14. Dysentery.....					1	1
18. Erysipelas.....					1	1
20. Purulent infection and septicæmia.....					1	1
24. Tetanus.....				4		4
27a. Beriberi infantile.....				7	58	65
28. Tuberculosis of the lungs.....					1	1
61. Simple meningitis:						
(1) Simple meningitis.....					8	8
(2) Cerebrospinal meningitis (undefined).....					2	2
89. Acute bronchitis.....				1	21	22
90. Chronic bronchitis.....					9	9
91. Broncho-pneumonia.....				1	8	9
92. Pneumonia.....					1	1
104. Diarrhœa and enteritis.....					26	26
119. Acute nephritis.....					2	2
122. Other diseases of the kidneys and annexa.....					1	1
124. Diseases of the bladder.....					1	1
143. Furuncle.....					1	1
146. Other diseases of the skin and annexa.....					1	1
150. Congenital malformations (stillbirths not included):						
(2) Congenital malformations of the heart.....				1		1
(3) Other congenital malformation.....				1		1
151. Congenital debility, icterus, and sclerema:						
(1) Premature birth (not still-born).....	6				1	7
(2) Congenital debility.....	19	1		22	19	61
152. Other causes peculiar to early infancy:						
(2) Other causes peculiar to early infancy.....	1					1
167. Burns (conflagration excepted).....					1	1
Total.....	26	1		37	164	228

ANTI-PLAGUE CAMPAIGN IN THE CITY OF MANILA

Number of spring traps set.....	22,411
Number of rats caught with spring traps.....	5,043
Number of wire traps set.....	744
Number of rats caught by wire traps.....	28
Number and kind of baits (coconuts).....	23,155
Number of poison portions placed.....	32,522
Number of rats found poisoned.....	1,012
Number of rats killed by clubs and other weapons.....	2,260
Number of rats found dead from other causes.....	704
Total number of rats otherwise caught, found dead or killed.....	9,047
Total number of rats sent to the laboratory for examination.....	9,047
Total number of rats found positive for plague.....	0

**TYPHOID AND PARATYPHOID FEVER REPORTED DURING THE MONTH OF
JULY, 1922, CITY OF MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	9	1	9	1	14	1	7	3	6	0	51
Female.....	11	1	7	1	6	0	8	2	0	0	36
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	1	0	0	0	0	0	0	1
Total:											
Male.....	9	1	9	1	14	1	7	3	6	0	51
Female.....	11	1	7	2	6	0	8	2	0	0	37
Grand total:	20	2	16	3	20	1	15	5	6	0	88

DEATHS

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	0	0	0	2	0	0	3	0	2	0	7
Female.....	0	0	3	1	1	0	0	0	1	0	6
Total.....	0	0	3	3	1	0	3	0	3	0	13

Total cases reported within the month in the City of Manila.....	121
Resident cases.....	98
Nonresident cases.....	23
Foreign cases.....	0
Total deaths reported within the month in the City of Manila.....	15
Deaths among resident cases.....	13
Deaths among nonresident cases.....	2
Deaths among foreign cases.....	0
Total cases confirmed as typhoid fever.....	102
Autopsy.....	0
Blood culture.....	0
Clinically positive.....	70
Feces.....	2
Widal reaction.....	30
Cases confirmed as paratyphoid fever (stool examination).....	8
Cases not confirmed.....	11
Paratyphoid fever.....	<div> <div></div> <div>Residents, 1 Case, 0 Death.</div> <div>Nonresidents, 7 Cases, 0 Death.</div> </div>

**DYSENTERIES REPORTED DURING THE MONTH OF JULY, 1922, CITY OF
MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	4	0	2	0	3	0	2	0	0	0	11
Female.....	1	0	0	0	2	0	4	0	0	0	7
Dead:											
Male.....	0	1	1	2	0	4	0	5	0	0	13
Female.....	0	0	0	0	1	4	0	2	0	0	7
Total:											
Male.....	4	1	3	2	3	4	2	5	0	0	24
Female.....	1	0	0	0	3	4	4	2	0	0	14
Grand total..	5	1	3	2	6	8	6	7	0	0	38

DEATHS

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	0	1	2	1	1	5	0	5	0	0	15
Female.....	0	0	0	0	1	5	1	2	0	0	9
Total.....	0	1	2	1	2	10	1	7	0	0	24

Total cases reported within the month in the City of Manila.....	38	47
Resident cases	6	
Nonresident cases		30
Total deaths reported within the month in the City of Manila.....	24	
Deaths among resident cases.....	9	
Deaths among nonresident cases.....		15
Reported as:		
Acute dysentery.....	8	
Amoebic dysentery.....	4	
Bacillary dysentery.....	9	
Chronic dysentery.....	1	
Dysentery	25	
Erroneously reported as dysentery.....		0
Total		47

Dysentery carriers—none.

**CONFIRMED CHOLERA CASES REPORTED DURING THE MONTH OF JULY, 1922,
CITY OF MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	1	0	0	0	1
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	1	0	0	0	1
Grand total..	0	0	0	0	0	0	1	0	0	0	1

DEATHS

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total.....	0	0	0	0	0	0	0	0	0	0	0

Total cases reported within the month in the city of Manila.....	12
Nonresident cases (negative).....	2
Foreign cases	0
Resident cases	10
Resident cases confirmed as cholera.....	1
Resident cases not confirmed (found negative).....	9
Total deaths reported within the month in the City of Manila.....	0
Deaths among nonresident cases.....	0
Deaths among foreign cases.....	0
Deaths among resident cases confirmed as cholera.....	0
Deaths among resident cases not confirmed.....	0

6 cholera carriers: 3 living, 3 dead bodies.

**DIPHTHERIA REPORTED DURING THE MONTH OF JULY, 1922, CITY OF
MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	0	0	0	0	0	0	1	0	0	0	1
Female.....	2	0	2	0	0	0	2	0	1	0	7
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total:											
Male.....	0	0	0	0	0	0	1	0	0	0	1
Female.....	2	0	2	0	0	0	2	0	1	0	7
Grand total..	2	0	2	0	0	0	3	0	1	0	8

DEATHS

Sex.	Health districts.										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	0	0	0	0	0	0	1	0	0	0	1
Female.....	0	0	0	0	0	0	1	0	0	0	1
Total.....	0	0	0	0	0	0	2	0	0	0	2

Total cases reported within the month in the City of Manila.....	12
Resident cases	12
Nonresident cases	0
Resident cases confirmed as diphtheria.....	8
Resident cases not confirmed.....	4
Total deaths reported within the month in the City of Manila.....	2
Deaths among resident cases confirmed as diphtheria.....	2
Deaths among resident cases not confirmed.....	0
Deaths among nonresident cases.....	0

Diphtheria carriers: 2 cases, 0 death.

**OTHER COMMUNICABLE DISEASES REPORTED IN THE CITY OF MANILA,
DURING THE MONTH OF JULY, 1922**

RESIDENTS

Diseases.	Cases.		Deaths.	
	Male.	Female.	Male.	Female.
Malaria.....	5	1	0	1
Varioloid.....	1	0	0	0
Varicella.....	0	1	0	0
Smallpox.....	0	0	0	0
Measles.....	2	0	0	0
Whooping cough.....	0	0	0	0
Influenza.....	10	6	1	1
Bubonic plague.....	0	0	0	0
Beriberi.....	0	1	0	1
Beriberi, infantile.....	32	30	32	30
Pulmonary tuberculosis.....	67	50	47	42
Tuberculosis of all forms.....	8	6	8	6

OTHER COMMUNICABLE DISEASES REPORTED IN THE CITY OF MANILA, ETC.—Ctd.
NONRESIDENTS

Diseases.	Cases.		Deaths.	
	Male.	Female.	Male.	Female.
Malaria.....	3	0	2	0
Varioloid.....	0	0	0	0
Varicella.....	0	0	0	0
Smallpox.....	0	0	0	0
Measles.....	0	1	0	0
Whooping cough.....	0	0	0	0
Influenza.....	2	2	0	0
Bubonic plague.....	0	0	0	0
Beriberi.....	1	1	1	1
Beriberi, infantile.....	2	1	2	1
Pulmonary tuberculosis.....	18	6	13	3
Tuberculosis of all forms.....	*3	1	*3	1

* Includes 1 permanent resident unknown.

REPORT ON THE DISTRIBUTION OF ASSORTED SERA AND VACCINES

Sera and vaccines.	On hand July 1, 1922.	Received during the month.	Total to be accounted for.	Distributed during the month.	Remaining at the end of the month.
Anti-diphtheric serum (units).....		92,000	92,000	92,000	
Anti-dysenteric serum (ampoules).....	8	197	205	172	33
Anti-tetanic serum (units).....		572,000	572,000	532,000	40,000
Cholera vaccine (cc.).....	900	49,320	50,220	44,720	5,500
Dried vaccine virus (units).....	27,450	20,000	47,450	28,550	18,900
Fresh vaccine virus (units).....	102,100	200,000	302,100	207,100	95,000
Gonococcus vaccine (ampoules).....		120	120	120	
Mixed typhoid and cholera vaccine (cc.).....	1,370	63,060	64,430	55,130	9,300
Normal horse serum (ampoules).....		42	42	42	
Plague vaccine (ampoules).....		40	40	40	
Typhoid and paratyphoid vaccine (cc.).....	4,540	18,610	23,150	16,010	7,140

**SMALLPOX VACCINATIONS IN THE CITY OF MANILA DURING THE MONTH OF
JULY, 1922**

Health districts.	Total vaccina- tions.	Total inspec- tions.	Positive.	Negative.
No. 1, Intramuros.....	926	234	192	42
No. 2, Meisic.....	2,710	392	370	22
No. 4, Sampaloc.....	2,332	190	187	3
No. 5, Tondo.....	1,343	363	315	48
No. 6, Paco.....	749	129	118	16
Total.....	8,060	1,308	1,177	131

**CONSOLIDATED CHOLERA VACCINATIONS IN THE CITY OF MANILA FOR
THE MONTH OF JULY, 1922**

Districts.	Number of persons vaccinated.								Total.
	Males.				Females.				
	Single injections.		Double injections.		Single injections.		Double injections.		
	A.	C.	A.	C.	A.	C.	A.	C.	
No. 1, Intramuros.....									
No. 2, Meisic.....									
No. 4, Sampaloc.....	6	1			3				10
No. 5, Tondo.....									
No. 6, Paco.....									
Total.....	6	1			3				10

NOTE.—A, means adults; C, children.

**CONSOLIDATED TYPHOID VACCINATIONS IN THE CITY OF MANILA FOR THE
MONTH OF JULY, 1922**

Districts.	Number of persons vaccinated.					
	Males.					
	Single injections.		Double injections.		Triple injections.	
	A.	C.	A.	C.	A.	C.
No. 1, Intramuros.....	338	45	228	18	1	.....
No. 2, Meisic.....	.....	.....	.....	.....	.....	.....
No. 4, Sampaloc.....	168	58	79	37	.....	.....
No. 5, Tondo.....	17	4	676	535	.....	.....
No. 6, Paco.....	.....	.....	.....	.....	.....	.....
Total.....	523	107	983	590	1	.....

Districts.	Number of persons vaccinated.						Total injections.		
	Females.								
	Single injections.		Double injections.		Triple injections.				
	A.	C.	A.	C.	A.	C.	Single.	Double.	Triple.
No. 1, Intramuros.....	500	51	101	27			934	374	1
No. 2, Meisic.....									
No. 4, Sampaloc.....	153	89	86	29			468	231	
No. 5, Tondo.....	20	10	166	97			51	1,474	
No. 6, Paco.....									
Total.....	673	150	353	153			1,453	2,079	1

**CONSOLIDATED MIXED (TYPHOID AND CHOLERA) VACCINATIONS IN THE
CITY OF MANILA, FOR THE MONTH OF JULY, 1922**

Districts.	Number of persons vaccinated.					
	Males.					
	Single injections.		Double injections.		Triple injections.	
	A.	C.	A.	C.	A.	C.
No. 1, Intramuros.....	1,087	672	902	526	2	1
No. 2, Meisic.....	1,534	1,442	1,683	4,827	.....	.....
No. 4, Sampaloc.....	391	152	176	80	.....	.....
No. 5, Tondo.....	732	1,044	152	13	.....	.....
No. 6, Paco.....	242	582	102	550	59	463
Total.....	3,986	3,892	3,015	5,996	61	464

Districts.	Number of persons vaccinated.						Total injections.		
	Females.								
	Single injections.		Double injections.		Triple injections.				
	A.	C.	A.	C.	A.	C.	Single.	Doub e.	Tripple.
No. 1, Intramuros..	784	585	1,085	827	1	.....	3,128	3,290	4
No. 2, Meisic.....	1,235	336	992	3,261	.....	.....	4,547	10,763	.....
No. 4, Sampaloc....	367	176	168	125	.....	.....	1,086	549	.....
No. 5, Tondo.....	384	614	390	218	.....	.....	2,774	778	.....
No. 6, Paco.....	243	440	110	326	53	293	1,507	1,088	868
Total.....	3,013	2,151	2,695	4,757	54	293	13,042	16,463	872

NOTE.—A, means adults ; C, children.

TOTAL VACCINATIONS OF SMALLPOX IN THE PROVINCES FOR THE YEAR 1922¹

Province.	Vaccinations.	Inspections.	Positive.	Negative.
Abra.....	6,482	6,100	4,078	2,022
Agusan.....	4,557	2,104	1,042	1,062
Albay.....	64,193	51,817	32,995	17,822
Antique.....	8,508	7,850	5,425	2,425
Bataan.....	8,391	8,213	6,454	1,769
Batangas.....	28,879	13,641	10,059	3,582
Bohol.....	26,431	20,460	13,117	7,343
Bukidnon.....	455	346	132	214
Bulacan.....	23,628	15,809	11,661	4,148
Cagayan.....	12,892	8,365	5,087	3,298
Camarines Norte.....	1,622	1,401	950	451
Camarines Sur.....	27,174	18,953	13,721	5,232
Capiz.....	26,846	24,718	18,816	5,902
Catanduanes.....	55,463	40,013	25,885	14,128
Cavite.....	11,390	11,283	7,676	3,607
Cebu.....	83,671	60,292	33,208	27,084
Cotabato.....	7,266	3,537	737	2,800
Cullion Leper Colony.....	827	817	869	448
Davao.....	4,205	3,959	2,699	1,260
Ilocos Norte.....	13,006	11,042	4,830	6,212
Ilocos Sur.....	36,804	26,418	17,512	8,906
Iloilo.....	48,021	29,460	22,403	7,057
Isabela.....	8,010	6,236	2,192	4,044
Laguna.....	13,738	10,528	6,827	3,701
La Union.....	12,941	9,554	4,829	5,225
Lanao.....	817	1,152	768	384
Leyte.....	92,122	56,548	42,016	14,532
Marinduque.....	10,372	7,852	5,087	2,765
Masbate.....	4,555	195	126	69
Mindoro.....	8,994	7,162	4,880	2,782
Misamis.....	6,687	2,305	1,451	554
Mountain Province.....	16,838	8,540	6,063	2,477
Nueva Ecija.....	108,780	75,791	43,568	32,223
Nueva Vizcaya.....	1,697	1,634	1,274	860
Occidental Negros.....	25,952	17,202	9,778	7,424
Oriental Negros.....	36,938	22,068	15,127	6,941
Palawan.....	2,701	2,572	1,320	1,252
Pampanga.....	12,725	7,921	6,809	2,112
Pangasinan.....	119,033	97,992	48,828	49,164
Rizal.....	27,888	23,139	14,313	8,826
Romblon.....	7,825	5,832	3,814	2,018
Samar.....	14,730	8,557	4,693	3,864
Sorsogon.....	282	269	232	87
Sulu.....	2,340	2,078	1,260	818
Surigao.....	11,193	9,373	5,572	3,801
Tarlac.....	4,648	4,308	2,702	1,606
Tayabas.....	26,146	22,442	15,110	7,332
Zambales.....	7,120	6,873	4,272	2,601
Zamboanga.....	6,009	4,714	2,501	2,213
Total.....	1,084,970	783,335	488,262	295,078

¹ Compilation of reports received since January.

Other reports not yet received

**CONSOLIDATED CHOLERA VACCINATIONS REPORTED IN THE PROVINCES
SINCE JANUARY, 1922¹**

Province.	Number of vaccinations.		
	Adults.	Children.	Total.
Abra.....	377	1,394	1,771
Albay.....	16,443	8,862	25,305
Antique.....	3,750	2,851	6,601
Bataan.....	914	475	1,389
Bohol.....	1,189	979	2,168
Bulacan.....	8,287	6,519	14,806
Cagayan.....	5,158	4,207	9,365
Camaringes Norte.....	1,173	160	1,333
Capiz.....	3,086	1,399	4,485
Catanduanes.....	654	430	1,084
Cavite.....	7,104	4,192	11,296
Cebu.....	3,562	1,694	5,256
Cotabato.....	708	164	872
Davao.....	159	61	220
Ilocos Norte.....	403	666	1,069
Ilocos Sur.....	3,736	2,722	6,458
Iloilo.....	972	1,178	2,150
Laguna.....	4,866	7,384	12,250
La Union.....	3,854	2,564	6,418
Leyte.....	1,143	567	1,710
Marinduque.....	550	363	913
Mindoro.....	2,501	960	3,461
Misamis.....	1,422	731	2,153
Nueva Ecija.....	1,520	1,476	2,996
Nueva Vizcaya.....	676	949	1,625
Oriental Negros.....	2,916	2,516	5,432
Pampanga.....	4,510	3,774	8,284
Pangasinan.....	5,221	3,856	9,077
Rizal.....	19,715	11,188	30,903
Romblon.....	568	185	753
Sorsogon.....	1,310	703	2,013
Sulu.....	913	159	1,072
Tarlac.....	654	355	1,009
Tayabas.....	2,295	318	2,613
Zambales.....	2,159	1,891	4,050
Zamboanga.....	1,230	1,121	2,351
Total.....	115,698	79,013	194,711

¹ Compilation of reports received.

Other reports not yet received.

**CONSOLIDATED TYPHOID VACCINATIONS REPORTED IN THE PROVINCES
SINCE JANUARY, 1922¹**

Province.	Number of vaccinations.		
	Adults.	Children.	Total.
Cavite.....	36	11	47
Davao.....	3	0	3
Ilocos Sur.....	1,002	851	1,853
Laguna.....	2,885	2,115	5,000
La Union.....	408	110	518
Pampanga.....	67	30	97
Pangasinan.....	907	231	1,138
Rizal.....	88	22	110
Total.....	5,396	3,370	8,766

¹ Compilation of reports received since January.

Other reports not yet received.

**CONSOLIDATED MIXED (TYPHOID AND CHOLERA) VACCINATIONS REPORTED
IN THE PROVINCES SINCE JANUARY, 1922¹**

Province.	Number of vaccinations.		
	Adults.	Children.	Total.
Abra.....	494	159	653
Antique.....	451	274	725
Bataan.....	567	211	778
Batangas.....	5,867	4,409	10,276
Bohol.....	311	.....	311
Cagayan.....	2,539	1,719	4,258
Camarines Norte.....	26	2	28
Capiz.....	249	106	355
Cavite.....	2,485	906	3,391
Cebu.....	1,550	263	1,813
Davao.....	311	113	424
Ilocos Norte.....	3,712	2,040	5,752
Ilocos Sur.....	5,280	1,993	7,273
Iloilo.....	4,220	2,398	6,618
Isabela.....	396	111	507
Laguna.....	501	117	618
La Union.....	4,635	2,282	6,917
Lanao.....	1,751	1,315	3,066
Leyte.....	134	99	233
Marinduque.....	251	240	491
Nueva Ecija.....	474	128	602
Nueva Vizcaya.....	363	232	595
Oriental Negros.....	72	54	126
Pampanga.....	6,136	4,445	10,581
Pangasinan.....	2,713	1,218	3,931
Rizal.....	9,680	1,369	11,049
Romblon.....	296	.....	296
Samar.....	1,943	38	1,981
Sorsogon.....	1,602	524	2,126
Surigao.....	664	235	899
Tarlac.....	555	381	936
Tayabas.....	3,396	326	3,722
Zamboanga.....	335	185	520
Total.....	68,645	30,424	99,069

¹ Compilation of reports received.

Other reports not yet received.

**SMALLPOX REPORTED FROM THE PROVINCES, DURING THE MONTH OF
JULY, 1922**

Province and town.	Cases.	Deaths.
Mindoro:		
Calapan.....	1	.....
Total.....	1	.....

**CHOLERA REPORTED FROM THE PROVINCES, RECEIVED DURING THE MONTH
OF JULY, 1922**

Provinces and towns.	Cases.	Deaths.
Batangas:		
Bauan.....	2	2
Malvar.....	1	.....
Rosario.....	2	.....
Tanauan.....	4	3
Marinduque:		
Mogpog.....	.....	1
Santa Cruz.....	3	3
Rizal:		
Passay.....	1	.....
San Felipe Neri.....	1	.....
Total.....	14	9

**OPERATION OF THE SANITARY ENGINEERING OFFICE IN THE CITY OF
MANILA DURING THE MONTH OF JULY, 1922**

	Health districts.					Total.
	No. 1.	No. 2.	No. 4.	No. 5.	No. 6.	
	Intra- muros.	Meisic.	Sampa- loc.	Tondo.	Paco.	
Orders pending June 30, 1922:						
Minor.....	18	14	13	36	16	97
Sewer.....	19	49	7	2	2	79
Vacating.....		33	10		2	45
Filling.....	2	1	4	3	6	16
Total.....	39	97	34	41	26	237
Orders issued during the month:						
Minors.....	3	4	8		4	19
Sewer.....		1	8		1	10
Vacating.....		6				6
Filling.....	3					3
Total.....	6	11	16		5	38
Grand total.....	45	108	50	41	31	275
Orders completed during the month:						
Minor.....	5	7	2	2	1	17
Sewer.....	1	5	1			7
Vacating.....		4	1			5
Filling.....						
Total.....	6	16	4	2	1	29
Orders cancelled during the month:						
Minor.....						
Sewer.....		1				1
Vacating.....						
Filling.....						
Total.....		1				1
Orders pending July 31, 1922:						
Minor.....	16	11	19	34	19	99
Sewer.....	18	44	14	2	3	81
Vacating.....		35	9		2	46
Filling.....	5	1	4	3	6	19
Total.....	39	91	46	39	30	245
Strong materials, plans approved:						
New buildings including additions and alterations.....	19	9	28	78	19	153
Permits for minor building constructions:						
Approved.....	14	14	17	32	10	87
Disapproved.....	3	2	6	6	3	20
New buildings.....	24	6	22	16	4	72
Light and mixed material construction:						
Permits approved.....			11	6	5	22
Permits disapproved.....			6	2	4	12
Total number of buildings projects passed upon.....	60	31	90	140	45	366
Prosecutions:						
Conviction.....			1			1
Dismissal.....	* 1					* 1
Amount of fines.....			P10			P10
Plumbing permits issued.....	26	27	17	35	7	112
Plumbing projects completed.....	25	18	28	64	9	144
Premises connected to the sanitary sewer to June, 1922.....	1,532	2,683	958	455	378	6,006
Premises connected during the month.....	6	5	5	9		25
Totals.....	1,538	2,688	963	464	378	6,031

* Sanitary order complied with.

Intramuros includes Ermita and Malate; Meisic includes Santa Cruz, Binondo, and San Nicolas; Sampaloc includes Quiapo, San Miguel, and Santa Mesa; Paco includes Pandacan and Santa Ana.

THE GOVERNMENT OF THE PHILIPPINE ISLANDS
DEPARTMENT OF PUBLIC INSTRUCTION

MONTHLY BULLETIN
OF THE
PHILIPPINE HEALTH SERVICE

VOL. II

AUGUST, 1922

No. 8

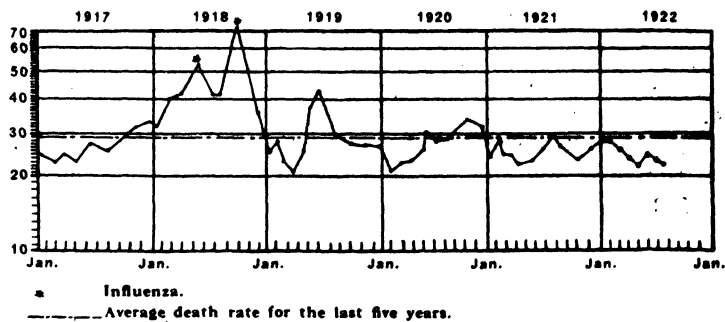
The keystone of a nation's progress is sanitation and education



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1. Preventive Medicine and Public Health vs. Superstition and Ignorance.
2. A Beautiful Town.
3. Miscellaneous.
4. Vital Statistics for August.

ANNUAL DEATH RATES BY MONTH, CITY OF MANILA



MANILA
BUREAU OF PRINTING
1922

COMMITTEE ON THE MONTHLY BULLETIN, P. H. S.

S. V. DEL ROSARIO, *Assistant Director of Health, Chairman*

J. P. BANTUG, *Senior Medical Inspector, P. H. S., Member*

L. LOPEZ RIZAL, *Senior Medical Inspector, P. H. S., Member*

M. V. ARGUELLES, *Senior Surgeon, P. H. S., Secretary*

V. KEEP YOUR HOUSE AND YARDS IN SANITARY CONDITIONS

1. Domestic cleanliness and sanitation in your surroundings is your first line of defense against diseases.

2. The chief source of communicable diseases is man himself. Things outside the human body are dangerous only when they have been polluted by man himself.

3. Dirt, rubbish, garbage, and all insanitary places are the common shelter of disease germs.

4. Have a fly and rat-proof garbage receptacle; use it and keep it in proper condition.

5. Drain ditches and pools about your premises and keep your gutters and canals clean and running.

6. Stagnant waters about the houses afford favorable breeding places for mosquitos. Malaria mosquitoes are the vectors of malaria parasites to man.

7. Decomposing wastes of homes and stables give offensive odors, may contain germs of human disease, and afford breeding places for flies.

8. House flies and other insects are no longer harmful to men if there is no dirt, filth, or human excretions on which to alight.

9. Disease germs are transported by household wastes to persons just by means of drinking-water containing drainage from wastes and second by means of house-flies.

10. Household wastes should not remain exposed on the surface of the ground; they should be placed at least 50 feet from a dwelling or source of water supply and should be protected from flies.

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**PREVENTIVE MEDICINE AND PUBLIC HEALTH VERSUS
SUPERSTITION AND IGNORANCE**

By **TEOFILO CORPUS, M.D.**

Medical Inspector, Philippine Health Service

Superstition has been handed down from generation to generation; it is inherited from forefathers by offspring. Its presence is inversely proportional to the degree of civilization and education of one people. A highly civilized and educated country believes in little or no superstition, and barbarous peoples are very superstitious.

Ignorance is not a fault committed by men; it is rather a misfortune. The possessors simply have not had the opportunity to acquire in their gray matter that virtue of specialized information so necessary in progress.

Through ignorance, health work is misinterpreted. Health laws and ordinances are disobeyed. Health counsels are misunderstood and disregarded. Medical men are disbelieved. By superstition, the service is belittled. Preventive medicine is not appreciated. Hygiene and sanitation cannot be too highly emphasized.

Ignorance and superstition block health work. They are enemies that steadfastly resist our progress. Are we determined to yield and be slaves of ignorance and superstition, or fight to the last until we become their victors? In which direction are we going? What stand do we take?

The specific problem is this: How may preventive medicine be put to full and licit use when confronted with ignorance and superstition? How can a fixed gauge be laid down as a means to base the standard of health work?

A number of persons believe in "herbolarios" rather than in the medical men. This class prefers the application of some herbs to the use of drugs, because they believe that herbs have more efficacious curative properties than drugs. Moreover, to them herbs are so inexpensive that they can be had in abundance.

The "mangbubúlong" is another class of popular "doctors." With some "enchanted" words or phrases—usually imperfect Latin—whispered on the

affected part, as an abscess, a swelling, or a wound, this ailing part is believed to get well. The "mangtatapal" and the "mangbubugá" chew betel nut and leaves or some reported medicinal herbs, and spread the paste on the affected part. Some believe that there are people whose bodily odor, transmitted to others, will produce sickness—headache (*gohoy*, and stomachache (*balis*), and the only way to get rid of this sickness is to call for these men who apply chewed betel nut and leaves on aching region, and the patient is "immediately cured" after one or two applications.

A certain percentage of the people believe in the "mangkukúlam." This class of people are believed to cause sickness by introducing foreign objects in the body of another thru supernatural power, as a stick, a stone, some grains, a doll, or living fish. This act is revenge resulting from a dispute between the "mangkukúlam" and the afflicted. Typhoid fever, any acute pain of the body, distention of the abdomen because of tape-worms, insanity, and many chronic diseases are believed to be caused by the "mangkukúlam." For the cure of this sickness, the "mangkukúlam" is called upon to counteract the power. With this "pague" (a whip made of the stout and rough tail of stringray fish), he pitilessly whips the poor agonizing patient into the belief that the strokes of the whip are felt by the "mangkukúlam" and not by the patient.

If in the case above whipping is not performed, certain parts of the body, usually the tips of the fingers, the lips, nose, or the edges of the eyes, the soles and toes are burned with a red-hot iron nail, or scarifications are made on the face and abdomen with a knife. These tortures, of course, will aggravate the sickness of the patient, and death may follow. And how many lives, within the power of the law to save, have been lost because of such superstition and ignorance?

Because of fanaticism, certain things are believed to be created because of the miraculous power of certain saint and gods. A spring appears near a certain church; and in spite of the questionable potability of the water according to an examination by competent scientific authority, the people use the water persistently. An insanitary surface well where the water is contaminated, but believed to be hallowed, inhabited by a number of images of saints, is made a pilgrimage shrine. How many people get sick by drinking this dirty water because of ignorance?

We have the "hilot" (unlicensed midwife) and the "salag" (an assistant) with her unscientific maneuvers and septic procedures. How many lives of mothers and infants have been lost by such a misfortune because of ignorance and perhaps of superstitious beliefs? When will this massacre of the innocents stop?

And, lastly, there is the "curandero" (usually a woman), the so-called Dr. Laway. This individual is supposed to have superhuman power in healing. She is an unclean woman. She may have some assistants. In them, there is no trace of any education and civilization or a look of a gifted mind.

The invalids come to the "curandero" for relief: Paralytics, victims of advanced pulmonary tuberculosis and insanity, of gangrenous wounds and skin diseases, the blind and deaf, and hysterical patients. In a paralytic, the "curandero" manipulates the limbs—pulling, adduction, abduction, flexion, extension, rotation—with a force that will result pains on the part of the patient. She uses ordinary water placebo in her manipulations. She washes long-standing open wounds with her saliva by means of a piece of stick or a chicken-feather serving as the instrument. She treats

all kinds of skin diseases—scabies, ring-worm, dhobie-itch, without washing her hands. Tuberculous patients, though coughing and talking, are in the middle of the crowd.

These are few of the many superstitions and signs of ignorance that the Health Service has to face every day. They are barriers which must be overcome; and they are some of the many causes of the low standard of health in this country. In the constructive work, all classes of people should be reached—the poor and rich, the educated and the uneducated. This generation and the conservative people have to be dealt with. Now, what plans of reconstruction will remedy these sad conditions so that the numerous unintelligible superstitions and ignorant beliefs are stamped out?

The remedies to these conditions are many and varied. There is need of a constant intensive educational campaign thruout the land. The campaign will be directed by a personnel similar to that of the Provincial Sanitary Commission paid from the health fund of the province. The commission will stay longer in the barrios where more reconstruction work is needed. The work will consist of instructions, lectures, demonstrations, distribution of pamphlets, so as to complete the survey within two or three weeks.

There must needs be a standardization of physicians' fees. This scale must be within reach of all classes of patients, and must be directly proportional to their means. There shall be more charity work on the part of the health officers and private practitioners. Medical services and free medicines shall be instituted more liberally for the indigent. The provincial dispensaries should attract the poor people. There shall be a closer coöperation between the Health Service and other charity institutions in matters of giving more and wider facilities. The "hilot" and the "salag" must receive the proper instructions if they are to be allowed to practice.

The existence of the "curandero" must not be tolerated. If she practices her healing art, she should be severely punished by law. Every intelligent man shall work against her. Political factions shall not support her. Those having police powers should immediately work for her capture after notice of her existence. All authorities have to do their part in discouraging her work.

The work must be the slow process of evolution. The majority of the present generation, being conservative, will change a little if at all; more may be expected in the succeeding generations. Ignorance can be avoided and superstition minimized by the great intensification of health publicity work. When the ignorant and the superstitious people become educated, when everybody assimilates a solid knowledge of public health, we may then rest assured of our success.

A BEAUTIFUL TOWN

By TEOFILO CORPUS, M.D.

Medical Inspector, Philippine Health Service

When sanitation is given first thought in a town, that locality must be beautiful. The kind of sanitation implanted in a particular place betokens the degree of civilization and education in that locality. Sanitation is given a maximum of attention by the progressive nations of the world. Civilized and educated countries are clean and sanitary.

A bird's-eye view of a beautiful town will first point to the proper arrangement of the houses. The buildings are not too crowded. Public edifices are of a modern type. The streets afford modern conveniences.

People of all walks of life exhibit a high æsthetic taste. Everywhere are met strong healthy fathers and mothers of strong healthy children. Young and old are dressed in clean clothes. The poor people, altho cheaply clad, wear clean and newly-ironed clothes. No persons are seen dressed in a "calzoncillo" or in "camiseta" alone, or without a "camiseta" at all.

The homes deserves special praise. The former insanitary houses are now clean homes. Although of nipa and bamboo, the houses are neatly built, with flower-gardens in front and around. The children play in the clean premises. Nowhere is found a place favorable for the breeding of mosquitoes. The "púsalián" has been discarded by many families and by some it has been filled in to prevent the possible accumulation of water which has been used for culinary purposes.

The home is provided with a garbage-receptacle and an Antipolo toilet system. The children no longer throw their waste matter under or behind the house. Within the house is found a table of wholesome food and pure artesian well water to drink. Spoons, forks, knives have taken the place of the nasty dirty habit of eating with the fingers.

A town is not beautiful when its streets are neglected. When the dirt is not constantly swept up because of lack of sufficient "barrenderos," when there are no provisions for adequate sewage disposal, such a place is not sanitarily beautiful. When the habit of throwing paper, dirt, and other refuse on the streets still exists and when the children continually and carelessly deposit rubbish of any kind on the streets, this is not, of course, a promising place for keeping standard sanitation. It is really a bad habit to think that streets are places in which to deposit rubbish and waste, but this practice actually prevails in insanitary towns and barrios. The streets, it should be understood, are to be made as clean as possible. Animals, such as dogs and pigs, running about on the streets as if there were no laws to limit them—these pestering dirty animals are not met in a sanitary town.

Other places which stand permanently in a beautiful town are those for recreation. Public parks and gardens are built to provide for all

kinds of sports. In these places physical strength is tested for the up-building of the human body and for keeping it strong and healthy. Then every one in a beautiful town enjoys the health-giving benefits derived from inhaling the pure air of the great out-of-doors.

A beautiful town must have all necessary public buildings. It must have well-equipped public dispensaries and puericulture centers where the indigent sick may get prompt remedial treatment. The schoolhouse must be sanitary if the teaching of hygiene and sanitation in the schools is to carry conviction to the minds of the school-children.

Lastly, if the people and all the Government authorities coöperate in enforcing sanitary ordinances and in giving liberal contributions to the Health Service, the task of the conservation of the public health will be able to attain its maximum. No longer then will children die like flies, while the older people will have much greater chance of reaching maturity and even a very ripe age. Such will be some of the results of the establishment of "the beautiful town" from a sanitary point of view.

MISCELLANEOUS

PERSONAL NEWS

Dr. Bienvenido Caro has been relieved from duties at Health Station No. 1, Intramuros, and directed to proceed by the first available transportation to Sto. Domingo de Basco, Batanes, to assume the duties as District Health Officer thereof relieving Dr. Andres Baltazar.

Dr. Andres Baltazar, upon being relieved, will proceed to Balanga, Bataan, to assume the duties as District Health Officer thereof relieving Senior Surgeon Nicanor Victoriano.

Senior Surgeon Victoriano, upon being relieved, will proceed to San Fernando, La Union, to assume the duties of the District Health Officer thereof, vice Dr. Hilario Lara.

Effective August 10, 1922, Senior Medical Inspector Florentino Ampil is recalled for duty from leave and directed to proceed to Lingayen, Pangasinan, and assigned as District Health Officer thereof, relieving Dr. Gonzalo Montemayor. Dr. Ampil's designation as District Inspector for the First Health District of Inspection automatically ceases by virtue of this order.

Dr. Gonzalo Montemayor, Acting District Health Officer of Pangasinan, upon being relieved, is directed to assume his former duties.

The travel performed by Mr. Manuel Mañosa, Sanitary Engineer, from Manila to the Province of Laguna and return during the month of July, 1922, for the purpose of making survey in connection with the malaria campaign being necessary for the public service, has been confirmed and made of record.

Dr. Regino G. Padua has been directed to report to the Central Office effective August 7, 1922, with a view to proceed to the Iwahig Penal Colony on the first available transportation to investigate and report upon malaria therein. While Dr. Padua is waiting for transportation in Manila, he will finish his report on the malaria campaign in Laguna.

Dr. Vicente Rivera Sayo has been directed to take charge of the malaria campaign in Laguna during the absence of Dr. Padua, effective August 7, 1922. Dr. Rivera Sayo will be assisted in the work by Dr. Mariano Doria.

The detail of Medical Inspector Catalino Gavino as Chief of the San Lazaro Hospital effective April 1, 1922, will be without increase in compensation, the approval of the Department Head in accordance with paragraph 40, section 18 of Act 2935, not having been secured.

The assignment of Dr. Jacobo Fajardo as lecturer on Organization and Administration in connection with the giving of instruction to sanitary inspectors under the plan of the Philippine Health Service was revoked. Dr. Jose P. Bantug of the Central Office will temporarily perform the duties of lecturer originally assigned to Dr. Fajardo.

Dr. Jose A. Fernandez is temporarily detailed to Health Station No. 2, Meisic, to assist Dr. Felipe Arenas, the Medical Officer in charge of the Station, in anti-cholera and anti-typhoid vaccination work.

SCHOOL FOR SANITARY INSPECTORS

As approved by the Council of State and the Secretary of the Department, the School for Sanitary Inspectors began its classes yesterday. A total of 25 students will be enrolled. More attention will be given to field work and less to laboratory instruction.

The following have passed the examination and admitted to the School for Sanitary Inspectors:

- | | |
|-------------------------|-------------------------|
| 1. Deogracias Tactaquin | 14. Aurelio Diaz |
| 2. Sotero Sayana | 15. Marcelo Padua |
| 3. Deogracias Abella | 16. Cesario Manzano |
| 4. Nemesio Factora | 17. Pedro Nobleza |
| 5. Jose Tejada | 18. Ciriaco Jara |
| 6. Anselmo Rivera | 19. Bonifacio Mirto |
| 7. Dionisio Subido | 20. Bernardo Manalang |
| 8. Felix Palma | 21. Andres Jimeno |
| 9. Servillano Adamos | 22. Crisogono Gutierrez |
| 10. Epifanio Mabalay | 23. Estanislao Lim |
| 11. Felix Plaza | 24. Alfredo Nazareno |
| 12. Pedro Villanos | 25. Nicolas Obedencio |
| 13. Aurelio Aquino | |

EIGHT NEGATIVES FROM CULION

On the Polillo which arrived last night from Culion 8 negative lepers arrived having been brought over by the coast-guard Polillo.

YAWS IN PILA, LAGUNA

Three cases of yaws and five cases of tropical ulcers were found in the barrio of Linga, municipality of Pila, during a recent inspection of the District Health Officer of Laguna.

SANITARY RAID

With the assistance of several sanitary inspectors Dr. Felino Simpao, of the Intramuros Health Station, made inspections yesterday morning of 44 *tiendas de sarisari* most of which are owned by Chinese and found that in these establishments dirty printed papers were being used for wrapping bread and other kinds of foodstuffs offered for sale. The inspection covered Intramuros, Ermita, Malate, and San Marcelino. The owners will be arraigned before the Municipal Court for violation of the Sanitary Ordinances.

GENERAL STATISTICS

(Unless otherwise stated these statistics are for the month of August, 1922)

ESTIMATED POPULATION OF THE CITY OF MANILA FOR 1922¹

BY NATIONALITIES

Nationality.	Popula- tion.
Americans	3,134
Filipinos	273,497
Spaniards	1,955
Other Europeans	1,126
Chinese	17,856
All others	2,186
Total.....	299,754

BY DISTRICTS

Health districts.	Popula- tion.
No. 1, Intramuros.....	36,856
No. 2, Meisic.....	102,873
No. 4, Sampaloc.....	48,651
No. 5, Tondo.....	79,477
No. 6, Paco.....	32,097
Total.....	299,754

¹ Estimated on the basis of last figures published by the Census Office.

METEOROLOGICAL REPORT FOR MANILA CENTRAL OBSERVATORY DEDUCED FROM HOURLY OBSERVATIONS, AUGUST, 1922

Date.	Pressure mean.	Temperature.						Relative humidity.					
		In shade.*			Underground.			Mean.	Daily mean maximum.	Daily mean minimum.	Day.		
		Mean.	Absolute maximum.	Day.	Absolute minimum.	Day.	0.50 m.						
							8 a. m. mean.					2 p. m. mean.	
1-10.....	mm. 755.75	°C. 26.9	°C. 31.7	°C. 4	°C. 23.1	°C. 6	°C. 29.1	°C. 29.2	Per cent. 84.1	Per cent. 86.0	1	Per cent. 80.8	3
11-20.....	55.98	26.6	31.4	20	23.8	20	29.8	30.0	84.2	88.1	16	80.4	12
21-31.....	57.98	27.5	32.8	27	23.4	27	30.3	30.5	81.3	84.6	25	78.8	29
Date.	Prevailing direction.	Wind.			Atmidometer † (open air).			Sunshine.		Rainfall.			
		Total.	Velocity.		Total.	Daily maximum.	Day.	Total.	Daily maximum.	Day.	Total.	Rainy days.	
			Daily total maximum.	Day.									
1-10.....	WSW	Km. 4,520.5	955.0	1	mm. 29.9	mm. 4.4	4	h. m. 29 20	h. m. 4 35	4	mm. 77.6	4	
11-20.....	SW quad	3,397.5	436.0	12	31.6	3.9	12,15	47 20	7 10	12	50.2	9	
1-31.....	SW quad	2,698.0	344.0	31	42.3	4.5	28,31	70 20	10 05	27	33.7	2	

¹ Corrected for instrumental error and for temperature and reduced to sea level. Correction to standard gravity, — 1.72 mm.
² These values are taken from instrument mounted in the Observatory Park, 1.5 meters above ground.

BIRTHS REPORTED IN THE CITY OF MANILA

[Stillbirths not included]

Nationality.	Male.	Female.	Total.	Annual birth rate per 1,000.
Americans.....	6	3	9	33.83
Filipinos.....	498	463	961	41.40
Spaniards.....	4	3	7	42.19
Other Europeans.....	2	2	4	41.85
Chinese.....	12	22	34	22.43
All others.....	6	5	11	59.29
Total.....	528	498	1,026	40.33

BIRTHS, BY DISTRICTS

Health districts.	Legitimates.			Illegitimates.			Grand total.	Annual birth rate per 1,000.
	Male.	Female.	Total.	Male.	Female.	Total.		
No. 1, Intramuros.....	77	102	179	9	10	19	198	63.30
No. 2, Meisic.....	99	69	168	9	8	17	185	21.23
No. 4, Sampaloc.....	84	81	165	7	10	17	182	44.08
No. 5, Tondo.....	163	152	315	10	8	18	333	49.37
No. 6, Paco.....	63	66	119	7	2	9	128	46.99
Total.....	486	460	946	42	38	80	1,026	40.33

Number of births attended by physician, living, 279; stillbirths, 21.

Number of births attended by midwife, living, 90; stillbirths, 2.

Number of births attended by family, living, 657; stillbirths, 17.

NUMBER OF DEATHS AND DEATH RATE PER 1,000 AMONG RESIDENTS IN THE CITY OF MANILA, BY NATIONALITIES

[Stillbirths not included]

Nationality.	Male.	Female.	Total.	Annual death rate per 1,000.
Americans.....	1	.....	1	3.76
Filipinos.....	306	281	587	25.29
Spaniards.....	1	.....	1	6.03
Other Europeans.....	.....	.....	.....	.....
Chinese.....	16	5	21	13.86
All others.....	1	1	2	10.78
Total.....	325	287	612	24.06

TOTAL DEATHS BY SOCIAL CONDITION, INCLUDING TRANSIENTS

Social condition.	Male.	Female.
Married.....	111	67
Divorced.....	.....	.....
Widowed.....	32	50
Single.....	225	205
Conditions not stated.....	1	.....
Total.....	369	322
Grand total.....	691	

Stillbirths.....	40
Number of deaths with medical attendance.....	343
Number of deaths without medical attendance.....	348

DEATHS BY AGES IN THE CITY OF MANILA

[Stillbirths not included]

Ages.	Residents.		Transients.		Total.
	Male.	Female.	Male.	Female.	
Under 30 days.....	38	30		2	70
30 days to under 1 year.....	68	65	4	7	144
1 year to under 2 years.....	33	31	3	3	70
2 years to 4 years.....	22	30	2	3	57
5 years to 9 years.....	9	9	1		19
10 years to 14 years.....	4	1		3	8
15 years to 19 years.....	10	12	2	3	27
20 years to 29 years.....	29	19	15	6	69
30 years to 39 years.....	24	14	2	3	43
40 years to 49 years.....	13	18	5	4	40
50 years to 59 years.....	31	16	5	1	53
60 years to 69 years.....	20	10	2		32
70 years to 79 years.....	11	9			20
80 years to 89 years.....	6	12	1		19
90 years to 99 years.....	6	9	1		16
100 years and over.....		2			2
Age not stated.....	1				1
Total.....	325	287	43	35	690

NOTE.—One (1) male Filipino of 40 years of age, permanent residence unknown, not included in this table.

DEATHS AND DEATH RATE PER 1,000, BY DISTRICTS, INCLUDING TRANSIENTS

[Stillbirths not included]

Health districts.	Deaths.	Annual death rate per 1,000.
No. 1, Intramuros.....	102	32.61
No. 2, Meisic.....	130	14.92
No. 4, Sampaloc.....	106	25.67
No. 5, Tondo.....	277	41.06
No. 6, Paco.....	76	27.90
Total.....	691	27.16

[Stillbirths not included]

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.	Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
<i>I. General diseases.</i>												
1. Typhoid fever.....			6	6								16
4. Malaria.....			1	1								1
7. Whooping cough.....			1	1								1
19. Diphtheria and croup.....			2	1								2
10. Influenza.....			1	1								2
12. Asiatic cholera.....			11	8								19
14. Dysentery.....			2	2								4
17. Leprosy.....			1	1								2
20. Purulent infection and septicemia.....			2	1								3
24. Tetanus.....			2	1								3
27. Beriberi.....			3	1								4
27a. Beriberi, infantile.....			2	1								3
28. Tuberculosis of the lungs.....			24	16					1			41
29. Acute miliary tuberculosis.....			52	48					3			103
30. Tuberculous meningitis.....			1	2					1			3
31. Abdominal tuberculosis.....			2	2								4
35. Disseminated tuberculosis.....			1	1								2
37. Syphilis.....			1	1								2
39. Cancer and other malignant tumors of the buccal cavity.....			1									1
41. Cancer and other malignant tumors of the peritoneum, intestines, rectum.....			1	1								2
42. Cancer and other malignant tumors of the female genital organs.....				1								1
43. Cancer and other malignant tumors of the breast.....				1								1
45. Cancer and other malignant tumors of other organs or of organs not specified.....			1	1								2
47. Acute articular rheumatism.....	1											1
<i>II. Diseases of the nervous system and of the organs of special sense.</i>												
61. Simple meningitis:												
(1) Simple meningitis.....			11	5								16
(2) Cerebro-spinal meningitis (undefined).....			2	1								3
63. Other diseases of the spinal cord.....				1								1
64. Cerebral hemorrhage, apoplexy.....			5	1								6
66. Paralysis without specified cause.....			1	2					2			3
68. Other forms of mental alienation.....			1	1								2
71. Convulsions of infants (under 5 years of age).....			1	2								3

[illegible]

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Causes of death.

1. Typhoid fever.

1. Typhoid fever.....	5			1
9. Diphtheria and croup.....	1			1
14. Dysentery.....	1	1		1
24. Tetanus.....				1
28. Tuberculosis of the lungs.....	7			12
30. Tuberculous meningitis.....	2		1	2
31. Abdominal tuberculosis.....	1			1
37. Syphilis.....	1			1
56. Alcoholism (acute or chronic).....			1	1

64. Cerebral hæmorrhag

64. Cerebral hemorrhage, apoplexy	1	1
76. Diseases of the ears	1	1

79. Organic diseases of the heart

79. Organic diseases of the heart	1	1	2
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88. Diseases of the thyroid body.

88. Diseases of the thyroid body.	1	1	1
89. Acute bronchitis.	1	1	1
90. Chronic bronchitis.	1	1	1
91. Broncho-pneumonia.	1	1	1
92. Pneumonia.	2	2	2
	1	1	1
	1	1	1
	5	5	5
	1	1	1
	6	6	6
	2	2	2
	8	8	8
	4	4	4

100. Diseases of the pharynx.

100. Diseases of the pharynx.....	1	1
101. Diarrhoea and enteritis (under 2 years).....	2	1
104. Diarrhoea and enteritis (2 years and over).....	2	
106. Hernias, intestinal obstructions.....	1	
109. Other diseases of the liver.....	1	1
110. Other diseases of the liver.....	1	1
111. Other diseases of the liver.....	1	1
112. Other diseases of the liver.....	1	1
113. Other diseases of the liver.....	1	1
114. Other diseases of the liver.....	1	1
115. Other diseases of the liver.....	1	1
116. Other diseases of the liver.....	1	1
117. Other diseases of the liver.....	1	1
118. Other diseases of the liver.....	1	1
119. Other diseases of the liver.....	1	1
120. Other diseases of the liver.....	1	1
121. Other diseases of the liver.....	1	1
122. Other diseases of the liver.....	1	1
123. Other diseases of the liver.....	1	1
124. Other diseases of the liver.....	1	1
125. Other diseases of the liver.....	1	1
126. Other diseases of the liver.....	1	1
127. Other diseases of the liver.....	1	1
128. Other diseases of the liver.....	1	1
129. Other diseases of the liver.....	1	1
130. Other diseases of the liver.....	1	1
131. Other diseases of the liver.....	1	1
132. Other diseases of the liver.....	1	1
133. Other diseases of the liver.....	1	1
134. Other diseases of the liver.....	1	1
135. Other diseases of the liver.....	1	1
136. Other diseases of the liver.....	1	1
137. Other diseases of the liver.....	1	1
138. Other diseases of the liver.....	1	1
139. Other diseases of the liver.....	1	1
140. Other diseases of the liver.....	1	1
141. Other diseases of the liver.....	1	1
142. Other diseases of the liver.....	1	1
143. Other diseases of the liver.....	1	1
144. Other diseases of the liver.....	1	1
145. Other diseases of the liver.....	1	1
146. Other diseases of the liver.....	1	1
147. Other diseases of the liver.....	1	1
148. Other diseases of the liver.....	1	1
149. Other diseases of the liver.....	1	1
150. Other diseases of the liver.....	1	1

INFANT MORTALITY

Causes of death.	Under 24 hours.	24 hours to under 36 hours.	36 hours to under 48 hours.	48 hours to under 14 days.	14 days to under 1 year.	Total.
8. Whooping cough.....					1	1
24. Tetanus.....				3		3
27a. Beriberi, infantile.....				9	32	41
61. Simple meningitis:						
(1) Simple meningitis.....					4	4
(2) Cerebro-spinal meningitis (undefined).....					1	1
71. Convulsions of infants.....					3	3
89. Acute bronchitis.....					35	35
90. Chronic bronchitis.....					8	8
91. Broncho-pneumonia.....				1	17	18
92. Pneumonia.....					1	1
93. Pleurisy.....					2	2
104. Diarrhoea and enteritis.....					30	30
119. Acute nephritis.....					2	2
142. Gangrene.....					1	1
145. Other diseases of the skin and annexa.....					1	1
150. Congenital malformations (still- births not included):						
(3) Other congenital malforma- tions.....				1		1
151. Congenital debility, icterus and scler- ema:						
(1) Premature birth (not stillborn)	2					2
(2) Congenital debility.....	17	3		16	20	56
152. Other causes peculiar to early infancy:						
(2) Other causes peculiar to early infancy.....				4		4
Total.....	19	3		34	158	214

ANTI-PLAGUE CAMPAIGN IN THE CITY OF MANILA

Number of spring traps set.....	23,032
Number of rats caught with spring traps.....	5,043
Number of wire traps set.....	744
Number of rats caught by wire traps.....	18
Number and kind of baits set (coconuts).....	23,776
Number of poison portions placed.....	25,650
Number of rats found poisoned.....	1,171
Number of rats killed by clubs and other weapons.....	2,303
Number of rats found dead from other causes.....	681
Total number of rats otherwise caught, found dead or killed.....	9,216
Total number of rats sent to laboratory for examination.....	9,216
Total number of rats found positive for plague.....	0

**TYPHOID AND PARATYPHOID FEVER REPORTED DURING THE MONTH OF
AUGUST, 1922, CITY OF MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts.										Total.
	No. 1		No. 2		No. 4		No. 5		No. 6		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Living:											
Male.....	6	0	3	0	10	2	16	1	4	0	42
Female.....	4	0	19	0	5	0	12	0	2	0	42
Dead:											
Male.....	0	0	1	1	0	0	0	0	0	0	2
Female.....	0	0	0	1	0	0	0	1	0	0	2
Total:											
Male.....	6	0	4	1	10	2	16	1	4	0	44
Female.....	4	0	19	1	5	0	12	1	2	0	44
Grand total..	10	0	23	2	15	2	28	2	6	0	88

DEATHS

Sex.	Health districts.										Total.
	No. 1		No. 2		No. 4		No. 5		No. 6		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Male	0	0	2	1	1	0	4	1	0	0	9
Female.....	2	0	1	1	1	0	0	1	0	0	6
Total.....	2	0	3	2	2	0	4	2	0	0	15

Total cases reported within the month in the City of Manila.....	125
Resident cases.....	101
Non-resident cases.....	24
Foreign cases.....	0
Total deaths reported within the month in the City of Manila.....	21
Deaths among resident cases.....	15
Deaths among non-resident cases.....	6
Deaths among foreign cases.....	0
Total cases confirmed as typhoid fever.....	102
Autopsy.....	0
Blood culture.....	0
Clinically positive.....	81
Feces.....	2
Widal reaction.....	39
Cases confirmed as paratyphoid fever ¹	4
Cases not confirmed.....	19
Paratyphoid fever.....	<div> <div></div> <div> Residents—Cases, 3; Death, 0. Non-resident—Cases, 1; Death, 1. Typhoid carriers—10 living. </div> </div>

¹ All are positive stool examination except one.

**DYSENTERIES REPORTED DURING THE MONTH OF AUGUST, 1922, CITY OF
MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts.										Total.
	No. 1		No. 2		No. 4		No. 5		No. 6		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Living:											
Male	1	0	4	1	5	0	2	1	1	0	15
Female	0	0	3	0	6	2	3	1	1	0	16
Dead:											
Male	0	0	0	0	1	2	1	2	0	4	10
Female	0	1	0	1	0	2	0	0	0	0	4
Total:											
Male	1	0	4	1	6	2	3	3	1	4	25
Female	0	1	3	1	6	4	3	1	1	0	20
Grand total..	1	1	7	2	12	6	6	4	2	4	45

DEATHS

Sex.	Health districts.										Total.
	No. 1		No. 2		No. 4		No. 5		No. 6		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Male	0	0	0	0	3	2	0	2	0	4	11
Female.....	0	1	0	1	2	2	2	0	0	0	8
Total.....	0	1	0	1	5	4	2	2	0	4	19

Total cases reported within the month in the City of Manila.....	54
Resident cases.....	46
Non-resident cases.....	8
Total deaths reported within the month in the City of Manila.....	21
Deaths among resident cases.....	19
Deaths among non-resident cases.....	2
Reported as:	
Acute dysentery.....	4
Chronic dysentery.....	3
Amoebic dysentery.....	4
Bacillary dysentery.....	11
Dysentery.....	31
Erroneously reported as dysentery.....	1
Total	54

Dysentery carriers—None.

**CONFIRMED CHOLERA CASES REPORTED DURING THE MONTH OF AUGUST,
1922, CITY OF MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts.										Total.
	No. 1		No. 2		No. 4		No. 5		No. 6		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Living:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Dead:											
Male.....	0	0	0	0	0	0	0	1	0	0	1
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total:											
Male.....	0	0	0	0	0	0	0	1	0	0	1
Female.....	0	0	0	0	0	0	0	0	0	0	0
Grand total..	0	0	0	0	0	0	0	1	0	0	1

DEATHS

Sex.	Health districts.										Total.
	No. 1		No. 2		No. 4		No. 5		No. 6		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Male.....	0	0	0	0	0	0	0	1	0	0	1
Female.....	0	0	0	0	0	0	*1	0	0	0	1
Total.....	0	0	0	0	0	0	*1	1	0	0	2

Total cases reported within the month in the City of Manila.....	8
Non-resident cases (negative).....	1
Foreign cases.....	0
Resident cases.....	7
Resident cases confirmed as cholera.....	1
Resident cases not confirmed (found negative).....	6
Total deaths reported within the month in the City of Manila.....	3
Deaths among non-resident cases (not confirmed).....	1
Deaths among foreign cases.....	0
Deaths among resident cases confirmed as cholera.....	2
Deaths among resident cases not confirmed.....	0
4—Cholera carriers—Living, 3; Dead body, 1.	

* Previous case.

**DIPHThERIA REPORTED DURING THE MONTH OF AUGUST, 1922, CITY OF
MANILA, RESIDENT ONLY**

CASES

Reported.	Health districts.										Total.
	No. 1		No. 2		No. 4		No. 5		No. 6		
	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	
Living:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	1	0	1
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	1	1
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total:											
Male.....	0	0	0	0	0	0	0	0	0	1	1
Female.....	0	0	0	0	0	0	0	0	1	0	1
Grand total..	0	0	0	0	0	0	0	0	1	1	2

DEATHS

Sex.	Health districts.										Total.
	No. 1		No. 2		No. 4		No. 5		No. 6		
	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	
Male.....	0	0	0	0	0	0	0	0	0	1	1
Female.....	0	0	0	0	0	0	* 1	0	0	0	1
Total.....	0	0	0	0	0	0	* 1	0	0	1	2

Total cases reported within the month in the City of Manila.....	6
Resident cases.....	5
Non-resident cases (confirmed).....	1
Resident cases confirmed as diphtheria.....	2
Resident cases not confirmed.....	3
Total deaths reported within the month in the City of Manila.....	3
Deaths among resident cases confirmed as diphtheria *	2
Deaths among non-resident cases (confirmed).....	1
Diphtheria carriers—None.	

* Previous case.

**OTHER COMMUNICABLE DISEASES REPORTED IN THE CITY OF MANILA,
DURING THE MONTH OF AUGUST, 1922**

RESIDENTS

Diseases.	Cases.		Deaths.	
	Male.	Female.	Male.	Female.
Malaria.....	5	1	1	0
Varioloid.....	0	0	0	0
Varicella.....	2	1	0	0
Smallpox.....	0	0	0	0
Measles.....	5	2	0	0
Whooping cough.....	1	0	1	0
Influenza.....	14	7	2	1
Bubonic plague.....	0	0	0	0
Beriberi.....	4	1	4	1
Beriberi, infantile.....	24	17	24	17
Pulmonary tuberculosis.....	86	59	57	48
Tuberculosis of all forms.....	3	6	3	6

**OTHER COMMUNICABLE DISEASES REPORTED IN THE CITY OF MANILA,
DURING THE MONTH OF AUGUST, 1922—Continued**

NON-RESIDENTS

Diseases.	Cases.		Deaths.	
	Male.	Female.	Male.	Female.
Malaria.....	3	0	0	0
Varioloid.....	0	0	0	0
Varicella.....	5	2	0	0
Smallpox.....	0	0	0	0
Measles.....	0	0	0	0
Whooping cough.....	0	0	0	0
Influenza.....	6	1	0	0
Bubonic plague.....	0	0	0	0
Beriberi.....	0	0	0	0
Beriberi, infantile.....	0	0	0	0
Pulmonary tuberculosis.....	20	5	8	4
Tuberculosis of all forms.....	3	0	8	0

REPORT ON THE DISTRIBUTION OF ASSORTED SERA AND VACCINES

Sera and vaccines.	On hand August 1, 1922.	Received during the month.	Total to be accounted for.	Dis- tributed during the month.	Remain- ing at the end of the month.
Anti-diphtheric serum (units).....		150,000	150,000	150,000	.....
Anti-dysenteric serum (ampoules).....	33		33	20	13
Anti-tetanic serum (units).....	40,000	530,000	570,000	570,000	.....
Cholera vaccine (c.c.).....	5,500	9,000	14,500	13,510	990
Dried vaccine virus (units).....	18,900		18,900	12,500	6,400
Fresh vaccine virus (units).....	95,000	200,000	295,000	177,000	118,000
Gonococcus vaccine (ampoules).....		250	250	250	.....
Mixed typhoid and cholera vaccine (c.c.).....	9,300	33,060	42,360	41,560	800
Normal horse serum (ampoules).....		20	20	20	.....
Plague vaccine (ampoules).....					.....
Typhoid and paratyphoid vaccine (c.c.).....	7,140	18,000	25,140	19,260	5,880

**SMALLPOX VACCINATIONS IN THE CITY OF MANILA, DURING THE MONTH OF
AUGUST, 1922**

Health districts.	Total vaccina- tions.	Total inspec- tions.	Positive.	Negative.
No. 1, Intramuros.....	769	148	119	24
No. 2, Meisic.....	1,233	330	296	34
No. 4, Sampaloc.....	1,316	212	194	18
No. 5, Tondo.....	1,308	386	339	47
No. 6, Paco.....	800	158	134	24
Total.....	5,426	1,229	1,082	147

**CONSOLIDATED CHOLERA VACCINATIONS IN THE CITY OF MANILA
FOR THE MONTH OF AUGUST, 1922**

(See consolidated table of MIXED VACCINATIONS in the City of Manila)

**CONSOLIDATED TYPHOID VACCINATIONS IN THE CITY OF MANILA
FOR THE MONTH OF AUGUST, 1922**

Districts.	Number of persons vaccinated.					
	Males.					
	Single injections.		Double injections.		Triple injections.	
	A.	C.	A.	C.	A.	C.
No. 1, Intramuros.....	8	13			2	
No. 2, Meisic.....						
No. 4, Sampaloc.....	773	452	647	507		
No. 5, Tondo.....	14		117	113		
No. 6, Paco.....						
Total.....	795	465	764	620	2	

Districts.	Number of persons vaccinated.						Total injections.		
	Females.								
	Single injections.		Double injections.		Triple injections.				
	A.	C.	A.	C.	A.	C.	Single.	Double.	Triple.
No. 1, Intramuros.....	1	6					28		2
No. 2, Mehic.....									
No. 4, Sampaloc.....	855	502	288	283			2,582	1,725	
No. 5, Tondo.....	1		51	325			15	606	
No. 6, Paco.....									
Total.....	857	508	339	608			2,625	2,331	2

Note: A, means adults; C, children.

**CONSOLIDATED MIXED (TYPHOID AND CHOLERA) VACCINATIONS IN THE
CITY OF MANILA FOR THE MONTH OF AUGUST, 1922**

Districts.	Number of persons vaccinated.					
	Males.					
	Single injections.		Double injections.		Triple injections.	
	A.	C.	A.	C.	A.	C.
No. 1, Intramuros.....	1,229	1,196	886	638	3	1
No. 2, Meisic.....	3,276	608	1,972	558	2	4
No. 4, Sampaloc.....	530	191	441	158		
No. 5, Tondo.....	510	2,644	218	1,249		
No. 6, Paco.....	184	769	137	605	55	244
Total.....	5,729	5,408	3,654	3,208	60	251

Districts.	Number of persons vaccinated.						Total injections.		
	Females.								
	Single injections.		Double injections.		Triple injections.				
	A.	C.	A.	C.	A.	C.	Single.	Double.	Triple.
No. 1, Intramuros.....	443	786	106	371			3,654	2,001	4
No. 2, Meisic.....	2,191	278	1,506	313	3	5	6,353	4,349	14
No. 4, Sampaloc.....	428	68	281	138			1,217	1,018	
No. 5, Tondo.....	541	1,902	205	1,631			5,597	3,303	2
No. 6, Paco.....	251	752	111	621	58	215	1,956	1,474	572
Total.....	3,854	3,786	2,209	3,074	61	220	18,777	12,145	592

Note: A, means adults; C, children.

TOTAL VACCINATIONS OF SMALLPOX IN THE PROVINCES FOR THE YEAR 1922:

Provinces.	Vaccinations.	Inspections.	Positive.	Negative.
Abra.....	7,487	7,067	4,703	2,364
Agusan.....	4,736	3,152	1,503	1,649
Albay ²	44,379	27,399	18,603	8,796
Antique.....	12,019	10,956	7,427	3,529
Bataan.....	10,620	10,425	8,117	2,308
Batanes.....				
Batangas.....	33,488	13,641	10,059	3,582
Bohol.....	30,873	23,726	15,358	8,368
Bukidnon.....	2,947	2,081	1,110	971
Bulacan.....	30,800	21,130	15,552	5,578
Cagayan.....	14,273	9,676	6,043	3,633
Camarines Norte.....	2,323	2,084	1,462	622
Camarines Sur.....	32,877	22,978	16,705	6,273
Capiz.....	30,838	28,415	21,498	6,917
Catanduanes.....	57,065	42,410	27,371	15,039
Cavite.....	11,390	11,283	7,676	3,607
Cebu.....	102,209	73,999	40,792	33,207
Cotabato.....	10,315	5,214	1,118	4,096
Cullion Leper Colony.....	827	817	369	448
Davao.....	5,404	4,926	3,300	1,626
Ilocos Norte.....	17,390	14,652	6,333	8,319
Ilocos Sur.....	45,313	32,996	22,038	10,958
Iloilo.....	56,140	34,782	26,529	8,253
Isabela.....	8,819	6,705	2,364	4,341
Laguna.....	17,619	13,273	8,336	4,937
La Union.....	19,491	13,807	6,162	7,645
Lanao.....	6,736	4,245	2,855	1,390
Leyte ²	86,387	51,452	38,426	13,026
Marinduque.....	11,182	8,706	5,615	3,091
Masbate.....	7,374	195	126	69
Mindoro.....	10,310	8,169	4,901	3,268
Misamis.....	10,433	4,392	2,633	1,759
Mountain Province ²	15,614	8,495	5,013	2,482
Nueva Ecija.....	145,052	101,202	60,500	40,702
Nueva Vizcaya.....	2,529	2,445	1,899	546
Occidental Negros.....	34,283	23,744	13,116	10,628
Oriental Negros.....	67,969	41,775	26,228	15,547
Palawan.....	2,701	2,572	1,820	1,252
Pampanga.....	16,406	10,234	7,404	2,880
Pangasinan.....	144,804	128,431	64,756	63,675
Rizal.....	32,371	26,632	16,192	10,440
Romblon.....	11,097	8,069	4,928	3,141
Samar.....	14,730	8,557	4,698	3,864
Sorsogon.....	282	269	232	37
Sulu.....	2,729	2,434	1,529	905
Surigao.....	12,173	9,925	5,834	4,091
Tarlac.....	6,157	5,759	3,561	2,198
Tayabas.....	37,853	33,743	22,348	11,395
Zambales.....	8,079	7,862	4,832	3,030
Zamboanga.....	7,311	5,706	3,215	2,491
Total.....	1,304,204	942,607	583,684	358,923

¹ Compilation of reports received since January.² Corrected.

Other reports not yet received.

**CONSOLIDATED CHOLERA VACCINATIONS REPORTED IN THE PROVINCES SINCE
JANUARY, 1922¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Abra.....	1,715	2,059	3,774
Albay.....	19,306	10,121	29,427
Antique.....	3,750	2,851	6,601
Bataan.....	914	475	1,389
Batangas.....	10,803	9,431	20,234
Bohol.....	1,383	1,013	2,396
Bulacan.....	8,682	6,707	15,389
Cagayan.....	5,158	4,207	9,365
Camarines Norte.....	1,173	160	1,333
Capiz.....	3,086	1,399	4,485
Catanduanes.....	654	430	1,084
Cavite.....	7,104	4,192	11,296
Cebu.....	3,562	1,694	5,256
Cotabato.....	708	164	872
Davao.....	159	61	220
Ilocos Norte.....	403	666	1,069
Ilocos Sur.....	3,736	2,722	6,458
Iloilo.....	972	1,178	2,150
Laguna.....	5,130	7,664	12,794
La Union.....	3,854	2,564	6,418
Leyte.....	1,143	567	1,710
Marinduque.....	550	363	913
Mindoro.....	3,004	1,164	4,168
Misamis.....	1,422	731	2,153
Nueva Ecija.....	1,520	1,476	2,996
Nueva Vizcaya.....	676	949	1,625
Oriental Negros.....	3,759	4,285	8,044
Pampanga.....	4,584	3,847	8,431
Pangasinan.....	5,603	4,123	9,731
Rizal.....	19,751	11,225	30,976
Romblon.....	624	206	830
Sorsogon.....	1,310	703	2,013
Sulu.....	913	159	1,072
Tarlac.....	654	355	1,009
Tayabas.....	2,295	318	2,613
Zambales.....	2,159	1,891	4,050
Zamboanga.....	1,230	1,121	2,351
Total.....	133,449	93,246	226,695

¹ Compilation of reports received.

Other reports not yet received.

**CONSOLIDATED TYPHOID VACCINATIONS REPORTED IN THE PROVINCES SINCE
JANUARY, 1922¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Cavite.....	36	11	47
Davao.....	3	.....	3
Ilocos Sur.....	1,002	851	1,853
Isabela.....	34	.....	34
Laguna.....	2,885	2,115	5,000
La Union.....	408	110	518
Pampanga.....	138	80	218
Pangasinan.....	937	271	1,208
Rizal.....	88	22	110
Total.....	5,531	3,460	8,991

¹ Compilation of reports received since January.

Other reports not yet received.

**CONSOLIDATED MIXED (TYPHOID AND CHOLERA) VACCINATIONS REPORTED
IN THE PROVINCES SINCE JANUARY, 1922¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Abra.....	529	501	1,030
Antique.....	1,274	2,072	3,346
Bataan.....	579	315	894
Batangas.....	8,111	6,716	14,827
Bohol.....	311		311
Bulacan.....	971	440	1,411
Cagayan.....	2,663	1,769	4,432
Camaringes Norte.....	26	2	28
Capiz.....	249	106	355
Cavite.....	2,836	1,610	4,446
Cebu.....	1,550	263	1,813
Davao.....	387	152	539
Ilocos Norte.....	4,408	2,207	6,615
Ilocos Sur.....	7,040	2,237	9,277
Iloilo.....	9,300	5,814	15,114
Isabela.....	567	182	749
Laguna.....	501	117	618
La Union.....	4,635	2,232	6,867
Lanao.....	3,900	3,008	6,908
Leyte.....	1,551	1,484	3,035
Marinduque.....	541	959	1,500
Masbate.....	661	252	913
Nueva Ecija.....	1,960	1,891	3,851
Nueva Vizcaya.....	499	523	1,022
Oriental Negros.....	404	469	873
Pampanga.....	6,767	5,248	12,015
Pangasinan.....	5,489	2,175	7,664
Rizal.....	10,885	1,861	12,746
Romblon.....	296		296
Samar.....	3,234	47	3,281
Sorsogon.....	1,602	524	2,126
Surigao.....	889	393	1,282
Tarlac.....	1,008	872	1,880
Tayabas.....	4,736	1,034	5,770
Zambales.....	1,013	716	1,729
Zamboanga.....	791	475	1,266
Total.....	92,163	48,716	140,879

¹ Compilation of reports received.

Other reports not yet received.

SMALLPOX REPORTED FROM THE PROVINCES, FOR THE MONTH OF AUGUST, 1922

(No case; no death reported during the month)

**CHOLERA REPORTED FROM THE PROVINCES DURING THE MONTH
OF AUGUST, 1922**

Provinces and towns.	Cases.	Deaths.
Cagayan:		
Aparri.....	1	1
Lal-lo.....	2	2
La Union:		
Luna.....	1	
San Juan.....	1	1
Total.....	5	4

**OPERATION OF THE SANITARY ENGINEERING OFFICE IN THE CITY OF
MANILA DURING THE MONTH OF AUGUST, 1922**

	Health Districts—					Total.
	No. 1 Intra- muros.	No. 2 Meisic.	No. 4 Sam- paloc.	No. 5 Tondo.	No. 6 Paco.	
Orders pending July, 1922:						
Minor.....	16	11	19	34	19	99
Sewer.....	18	44	14	2	3	81
Vacating.....		35	9		2	46
Filling.....	5	1	4	3	6	19
Total.....	39	91	46	39	30	245
Orders issued during the month:						
Minor.....	8	7	2	2	4	23
Sewer.....		6				6
Vacating.....		1	4	5	1	11
Filling.....						
Total.....	8	14	6	7	5	40
Grand total.....	47	105	52	46	35	285
Orders completed during the month:						
Minor.....	3	11	3	1	4	22
Sewer.....	3	1				4
Vacating.....		6	1			7
Filling.....					1	1
Total.....	6	18	4	1	5	34
Order cancelled during the month:						
Minor.....						
Sewer.....		1				1
Vacating.....						
Filling.....						
Total.....		1				1
Orders pending August, 1922:						
Minor.....	21	7	18	35	19	100
Sewer.....	15	42	14	2	3	76
Vacating.....		35	8		2	45
Filling.....	5	2	8	8	6	29
Total.....	41	86	48	45	30	250
Strong materials, plans approved:						
New buildings including additions and alterations.....	25	12	32	74	13	156
Permits for minor building constructions:						
Approved.....	12	9	30	23	18	92
Disapproved.....	1	1	10	9	1	22
New buildings completed.....	23	6	18	31	17	95
Light and mixed material constructions:						
Approved.....			13	3	2	18
Disapproved.....			3		2	5
Total number of building projects passed upon.....	61	28	106	140	53	388
Prosecutions:						
Conviction.....		2		1		3
Dismissals.....		8				8
Amount of fines.....		P25.00		P5.00		P30.00
Plumbing permits issued.....	26	38	19	48	12	143
Plumbing projects completed.....	37	21	29	51	16	154
Premises connected to the Sanitary Sewer to July, 1922.....	1,538	2,688	963	464	378	6,031
Premises connected during the month.....	11	6	2	3	5	27
Total.....	1,549	2,694	965	467	383	6,058

Intramuros includes Ermita and Malate.
Meisic includes Sta. Cruz, Binondo, and San Nicolas.
Sampaloc includes Quiapo, San Miguel, and Sta. Mesa.
Paco includes Pandacan and Sta. Ana.

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Medical Lib.

THE GOVERNMENT OF THE PHILIPPINE ISLANDS
DEPARTMENT OF PUBLIC INSTRUCTION

MONTHLY BULLETIN
OF THE
PHILIPPINE HEALTH SERVICE

VOL. II

SEPTEMBER, 1922

No. 9

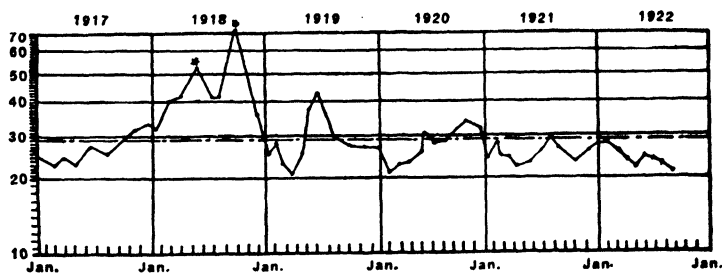
The keystone of a nation's progress is sanitation and education



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ANNUAL DEATH RATES BY MONTH, CITY OF MANILA



* Influenza.

— Average death rate for the last five years.

MANILA
BUREAU OF PRINTING
1922

COMMITTEE ON THE MONTHLY BULLETIN, P. H. S.

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J. P. BANTUG, *Senior Medical Inspector, P. H. S., Member*

L. LOPEZ RIZAL, *Senior Medical Inspector, P. H. S., Member*

M. V. ARGUELLES, *Senior Surgeon, P. H. S., Secretary*

VI. PROVIDE A SAFE WASTE DISPOSAL

1. Safe waste disposal means protection against diseases.
2. A good safe latrine is as necessary as a good bed and a good bath-room in your house for a modern living and for bodily comfort.
3. An improper and insanitary waste disposal endangers your life and that of your community.
4. Installing a safe waste disposal system is not all; use it with care and preserve it from deterioration.
5. A surface privy is next to no privy at all. It offers an ideal breeding place for flies.
6. Pigs and chickens are the usual scavengers in the provinces and act as disseminators of disease germs. Eliminate this danger by having a safe waste disposal.
7. Install a good waste disposal system or, at least, an Antipolo toilet in your house and check the spread of fecal-borne diseases.
8. An Antipolo toilet will not only materially help the looks of your house but also will banish the disgusting sight of dirty pigs and filthy chickens.
9. An Antipolo toilet will dispose of the sewage of the average provincial house.
10. Ask your health officer how to install an Antipolo toilet. He knows how.

MONTHLY BULLETIN
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PHILIPPINE HEALTH SERVICE

VOL. II

SEPTEMBER, 1922

No. 9

**A BEAUTIFUL SCHOOL FROM A SANITARY
POINT OF VIEW**

By **TEOFILO CORPUS, M.D.**

Medical Inspector, Philippine Health Service

I. SCHOOLCHILDREN MUST ALL PLAY

By beautiful school is meant a school which has everything that is required of it, besides being beautiful and pleasant to look at. There is the beautiful school in a barrio and beautiful school in a town or a city. Altho built of bamboo and nipa, a school may be beautiful. Altho built of wood or cement, that school may not be beautiful.

A beautiful schoolhouse has neat, uniformly-set, and wisely-constructed bamboo or wooden fences, inside of which are the beautiful playgrounds. At one end there is the indoor baseball field; on one side, there is the tennis court; on the other side, there are the basket and volley-ball fields; and beyond at the other end yonder are played all other sorts of recreation.

The schoolchildren participate in all these school activities. As a result, they become the products of a great system of physical training—active, big, and robust healthy men and women, types of good citizenship and great leaders of Filipino nationalism, trained and educated by Filipino volunteers and teachers and guided by great American benefactors.

II. BABIES' FOODS SHOULD BE EXPERIMENTED UPON

Domestic science is another school "beauty." It has some great significance in this time of national struggle for progress. It is the melting-pot in which to solve the great problem of saving people's lives. It will mean more to the Filipino people in time to come.

At the present time hundreds of Filipino babies are lost every year. Likewise, a great number of Filipino mothers are not

yet in a position to produce strong, fat, healthy children because they are not getting the proper nourishment to make the strong healthy mothers of strong healthy children.

Now, then, if besides the study of a great many varieties of dishes as ordinarily taught in any domestic science school, a greater part is experimented upon for the preparation of foods for infants from one day up to eight or ten years of age, domestic science will have rightly and ultimately solved a national problem, a sacred problem, that will redound to the benefit of happier, healthier Filipino children, a prevention of unnecessary baby loss, and the development of a sturdy Filipino race.

III. THE ANTIPOLLO SYSTEM IN EVERY SCHOOL

Many town and barrio schools still are not provided with an Antipollo toilet system or any other acceptable type of toilet. A schoolhouse without an Antipollo system of toilet is not beautiful.

Now, when schoolchildren are suffering from "bulate" or "tiwa" as the result of the absence of the Antipollo system of toilet, the school these schoolchildren attend is not beautiful. When the schoolchildren are weak, sickly, thin, pale, inactive in their work, backward in their studies, and inattentive in their classes as a result of these worms in their systems and this illness is in turn a result of inadequate, neglected, or improper toilet, this school, of course, is not beautiful.

IV. SCHOOLCHILDREN TO KNOW PRACTICAL SANITATION

Lastly, many of us have been pupils. In our classrooms, we were accustomed to see every day mottoes hanging in great big letters like these: "BE CLEAN," "DON'T THROW WASTE PAPER ON THE FLOOR," "DON'T SPIT ON THE FLOOR." And we were busy cleaning our rooms, picking up every little scrap from the floor and throwing it into the waste baskets; and we were carefully spitting outside. This sanitary attitude is another school beauty.

But you ask, "What happens in their homes when these children return from school?" Oh! that principle of cleanliness, the way of keeping their schoolrooms clean, the great gospel of sanitation which their teachers have been inculcating in their minds are voluntarily neglected and are not practiced in their homes. These schoolchildren have to be taught only the practical knowledge, and the knowledge of cleanliness is to be extended directly from the schoolhouse to the homes. When such an anomaly is corrected, that school will become beautiful and more beautiful.

AN APPEAL TO THE HOLDERS OF PURSE-STRINGS

By TEOFILO CORPUS, M.D.

Medical Inspector, Philippine Health Service

I. THE COÖPERATION WE NEED

The old conservative idea still prevailing, that public health is a cheap commodity from which is derived only a negligible profit, and the belief that capital invested in the work is loss and the expense of such a nature is extravagance, are, of course, not founded.

It is admitted, however, that if any misconception is created thereby, it is due to the lack of coöperation of the municipal authorities, who leave the performance of certain duties to the Health Service alone when such work rightly falls on them. For example, the catching of pigs about the streets, the cleaning and the laying out of a proper drainage system in any locality—all tending toward the improvement of sanitary conditions—cannot well be carried out without this literal coöperation.

The present state of affairs reveals the fact that the Health Service, which concerns the protection of public health, is not well supported. The average man thinks only in terms of pesos and centavos. He knows the price, and, therefore, the value of a pig; but as men are not bought and sold, he does not know the value of human life. In the same way haphazard coöperation will not, by any means, guarantee the attainment of the aims for which the Health Service has been created. The Service necessitates the maximum coöperation for the full realization of its duties. First-hand consideration should be given to it so that its work will be generalized for the entire satisfaction of the public.

It is, indeed, disappointing to observe that some municipalities do not seem to keep themselves abreast of the times in so far as prospects of any future stride for advanced sanitation and hygiene are concerned. Great prejudice has been and is still prevailing against the sacred undertakings of the Health Service. The municipal authorities doubt its efficiency and even look upon it with indifference.

The Health Service has promising tasks to perform provided that it is properly goaded on and supported by a strong force called "coöperation;" and by coöperation the Health Service will certainly have many good things easy to perform.

It is with this end in view that we call upon the municipal and provincial authorities to join us hand in hand. We ask them most kindly to esteem our work. We ask them to coöperate with us, especially during any devastating epidemic that may occur, and to give us all possible assistance they can.

II. NURSES TO SOLVE PROBLEM OF INFANT MORTALITY

Almost every year, an apparent great increase in the total mortality of our infants in the municipalities has been noted, and the majority of these infants die within the first year of life and one dies for every three or four births. This condition exists more frequently in the far-away barrios.

It is believed that this heavy toll of our infants is due to improper care, improper feeding, uncleanness, improper clothing, and dirty surroundings. The real cause is summed up in one word: IGNORANCE.

Our infants have the right to exist as everyone of us does. They are weaklings, of course, and they need our careful protection and constant help. For humanity's sake, we should stand by them every day of our life.

For the complete solution of the problem of infant loss, it is believed that the educational campaign should be extended to the far-away barrios where these ignorant persons should receive instruction in sanitation. It is the nurses that have to deal with the persons of their own sex in order to carry out the sanitary work with desirable results. They alone can carry out such a campaign if success is at all expected. They will win the hearts and overcome the timidity of our mothers. They will preach to them the gospel of cleanliness, proper care, proper feeding, and proper clothing. Should we have this work established, we would surely overcome one of the barriers of the Health Service in the Philippine Islands, and in this particular case, decrease the infant mortality.

III. EFFICIENCY THRU AN ADEQUATE OFFICE

We ask you one thing more. As your municipality does not provide an adequate office-room for your municipal health officer, we ask you to give us one—a well-ventilated and well-lighted room somewhere in the municipal building, with such necessary equipment as a wardrobe for medicines, a table for office use, and files where records can be safely kept. If possible, we should like to have the room so arranged that persons who wish to consult will be assured of their secrecy in the room. This room, which will be both for an office and a clinic, is of paramount importance to the foreign observers who will judge and criticize our work, especially that which concerns vitally our health and even our lives. Should there be the necessary office-room in every municipality, to be sanitary and pleasing to look at, all the aspects of modern improvements that are called for would be attained.

An office with no files, for the weekly, monthly, quarterly, and annual reports, no separate files for the correspondence sent out and received or for circulars and bulletins, and other necessary documents, is not an office.

Some offices still are not what they should be. It is a regret to state that while we are preaching the great doctrine of CLEANLINESS every day of our lives, it seems that we are the first ones to disobey this Golden Rule. If we do, why can not our respective offices, wherein we stay as frequently as in our homes and from which is derived the aspiration for the noble work entrusted in us, be made lovely, neat, clear, and sanitary, instead of unkempt as some of us have at the present time?

Now, if we stir for better things, if we work for more life, if we would want for more in the future, let us be more office-like!

IV. FIGHTING BATTLES WITH BARE FISTS

The municipal health officers today are like carpenters without tools. Give them the tools, and they will do many things. It is a pity to observe that when an accident occurs in many of the municipalities, which needs a little "sewing the skin," the health officers are not found armed with the necessary appliances and instruments to work with, and they are obliged to be satisfied with working on the wound under the most septic and insanitary conditions that can be imagined. To remedy this anomaly, we ask your coöperation, for we cannot justly be made to shoulder all of the blame.

V. PROVINCIAL DENTIST VERY NECESSARY

You are probably aware of the great physical drawback of our schoolchildren everywhere—sick teeth. It is a neglect deeply to be lamented if this is not remedied on time.

To cite a few facts about schoolchildren. It may be stated that 25 to 35 per cent of the schoolchildren have tooth defects. A schoolchild with a tooth defect does not feel well, and is naturally backward in his studies.

It is indispensable to remedy this avoidable defect of our schoolchildren, and the employment of a provincial dentist whose duty is to look after the teeth of the schoolchildren is very necessary.

VI. GOOD HEALTH WITH SKIMPING ECONOMY IMPOSSIBLE

Lastly, it goes without saying that the Health Service has to go on persistently on its onward path, if the mission of health-keeping and health-giving is to continue. With the apparent increase of its work, equipment, and personnel, it also has to increase its current expenses. With its present limited fund, it will sooner or later be seriously hampered if this foreseen untoward outcome is not remedied on time. As it is intended to be abreast of the times, it has to be liberal in its expenses, and it must need more in the future than at the present time.

If the municipalities will always contribute more for the health fund, any unfavorable result in view will be effectively offset. We, therefore, ask all municipal and provincial authorities to give to the Health Service the maximum per centum possible of their appropriations, for to be generously supplied with a princely outlay at the outset is to win half of the battle for human life.

CORRESPONDENCE

MANILA, October 2, 1922.

The EDITOR
VIRGINIA MEDICAL MONTHLY
Richmond, Va.

DEAR SIR: After reading the article, published in your issue of July, 1922 (page 223), entitled "Memorandum for the Surgeon-General," commenting on the smallpox situation and anti-variolic vaccination in the Philippines, we have decided to transmit to you, for the information of the public and in the interest of science, a brief exposition of facts which have certain bearing on the points therein discussed.

There might have been an over-confidence on the part of the public and the Legislature in previous vaccinations but this did not, by all means, lead to a stoppage of our anti-variolic vaccination system. Such may be shown in the following table:

TABLE I

Years.	Manila.		Provinces.		Mindanao and Sulu.		Total.	
	Inspection.	"Takes."	Inspection.	"Takes."	Inspection.	"Takes."	Inspection.	"Takes."
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
1911.....	17.3	64.62	56.9	57.14	50.9	49.52	54.5	66.00
1912.....	35.3	58.49	73.2	65.18	47.9	54.10	69.2	64.56
1913.....	19.4	57.35	61.2	65.44	59.4	54.84	58.3	64.90
1914.....	35.8	66.36	58.5	62.40	55.2	50.08	57.2	61.67
1915.....	27.6	63.82	66.4	65.71	55.1	53.53	64.4	65.20
1916.....	23.2	45.21	74.0	63.71	19.8	58.38	65.6	63.13
1917.....	32.4	64.30	77.9	65.32	51.4	45.86	70.6	63.81
1918.....	37.3	44.99	73.9	63.16	61.2	57.22	69.4	61.88
1919.....	36.9	53.33	66.8	66.60	64.8	64.92	65.4	66.18
1920.....	32.2	53.41	68.5	63.74	62.9	62.73	65.7	63.32
Average of 10 years....	33.0	52.95	67.5	65.02	57.5	58.85	64.7	64.32
1921.....	24.3	64.49	67.0	65.18	64.9	59.00	64.7	64.80

An analysis of the figures above indicates that, since the resignation of my predecessor on December 31, 1918, there has not been a marked diminution in the total percentages of inspections and of positive "takes." The Filipino personnel composing the vaccinating parties—in fact, the Insular, provincial, and municipal sanitary forces—have not failed to comply with the instructions and to cooperate with their American superiors since the passage of Jones Bill in 1916. The table above further indicates that since that year up to 1920, inclusive, there had been more vaccinations and inspections made than during the previous five years, as shown thus:

TABLE II.—Totals of five-year periods, of vaccination, inspections, and positive "takes"

Five-year periods.	Number of—			Percentage of—	
	Vaccinations.	Inspections.	Positive "takes."	Inspections.	Positive "takes."
Total of 1911 to 1915, inclusive....	7,113,962	4,281,620	2,756,987	60.19	64.39
Total of 1916 to 1920, inclusive....	17,322,927	11,533,461	7,418,091	66.61	64.29
Total and average.....	24,436,889	15,820,081	10,175,078	64.74	64.32

We cannot assert that our vaccinators had been infallible, for only an average of about 64 per cent of the inspected and presumably of the vaccinated, had had positive "takes." However, it must be stated that to

get 100 per cent positive "takes" in tropical regions is next to impossibility. And, granting that the vaccine virus had been always potent, we discover that the failure to get a higher percentage of positive "takes" might have been perhaps, in part, due to their lack of experience in using the vaccine properly, or to the actual immunity of the public as a whole against the infection, or both. But it cannot be admitted that systematic vaccination or immunization has been "allowed to lag," for, in the next table, it may be seen that in 1919, 1920, and 1921, the summation of the immunized (i. e., with positive "takes") has been relatively more than that in any previous three-year period under American health administration in this country:

TABLE III.—*Estimated numbers* of positive "takes" among the total vaccinations and percentage of the former on the estimated population for the corresponding year*

Year.	Manila.		Provinces.		Mindanao and Sulu.		Total.	
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
1911.....	48,163	18.94	872,649	11.04	48,763	5.02	972,014	10.64
1912.....	51,802	20.04	696,232	8.66	32,107	3.21	785,101	8.44
1913.....	60,112	22.89	896,708	10.96	26,914	2.62	989,186	10.44
1914.....	52,849	19.81	897,777	10.79	58,830	5.56	1,008,833	10.46
1915.....	31,009	11.45	760,867	9.00	31,370	2.89	834,850	8.40
1916.....	25,305	9.20	449,824	5.23	45,151	4.05	529,890	5.30
1917.....	52,334	18.75	425,293	4.87	38,838	3.39	521,436	5.13
1918.....	124,443	65.82	2,076,006	23.40	101,081	8.62	2,399,887	23.23
1919.....	192,368	66.94	3,810,518	53.38	255,016	21.21	5,278,866	50.27
1920.....	137,772	47.26	2,091,322	22.86	171,206	13.91	2,418,683	22.62
Average based on average per cent..	82,950	30.89	1,396,819	16.38	81,648	7.41	1,571,781	15.87
Average based on actual numbers..	83,816	30.71	1,397,730	16.39	80,928	7.35	^b 1,572,356 1,562,463	15.88 15.78
1921.....	89,330	^c 31.31	1,525,917	^c 17.07	90,915	^c 14.70	1,706,682	^c 17.34

* Obtained by multiplying the percentage of positive "takes" on the inspected by the total number of vaccinations.

^b The first is the summation of the vertical column of figures, the second of the horizontal.

^c Based on the population of 1918 census (1921 Annual Report).

In other words, the immunization of the public by anti-variolic vaccination during the last three years under Philippine health administration has, by far, excelled that of previous years in that there have been about 50.27 per cent of the total inhabitants who had had successful "takes" in 1919, 22.62 per cent in 1920, and 17.34 per cent in 1921—each more than the average of ten years—in contrast to 5.30 per cent in 1916, 5.13 per cent in 1917, and 23.23 per cent in 1918.

This fact should indicate that the present Director of Health not only did follow the advice of his American predecessor to continue the general vaccination that the latter had begun in 1918, but even extended the system in 1919 and appointed six more vaccinating parties of about twenty vaccinators each, with the result that there had been successfully immunized about 50.27 per cent of the total population in the latter against 23.23 per cent in the former. The extensive vaccination in 1919 may explain the relatively lower percentages of positive "takes" in the last two years, for many have presumably acquired strong immunity to resist the local reaction of subsequent vaccinations.

The last assertion may be supported by the fact that we have at last succeeded in reducing the morbidities and mortalities from the disease. In fact, the local morbidity and mortality rates during 1921 have become, from an epidemiological point of view, almost negligible; and in Manila, there has been, during the year, no single case of variola, as this table shows:

TABLE IV.—*Morbidity and mortality rates from smallpox per 10,000 population*

Years.	Manila.		Provinces.		Mindanao and Sulu.		Total.	
	Morbid-ity.	Mortal-ity.	Morbid-ity.	Mortal-ity.	Morbid-ity.	Mortal-ity.	Morbid-ity.	Mortal-ity.
1916.....	0.04	0.04	0.86	0.23	33.02	6.56	2.77	0.61
1917.....	0.11	0.07	0.64	0.30	18.70	2.64	1.72	0.44
1918.....	46.82	30.63	38.72	16.49	225.02	25.82	50.36	17.48
1919.....	1.98	1.01	107.56	52.84	99.03	24.86	103.86	49.55
1920.....	0.17	0.10	11.85	4.97	89.48	46.45	16.33	7.41
Average.....	9.83	6.38	32.33	15.16	94.01	21.77	35.43	15.30
1921 *.....	0	0	0.38	0.14	18.76	9.57	1.57	0.75

* Rates based on population of 1918 census (1921 Annual Report) which should be even smaller if based in estimated populations as have been done, in this table, for the previous years.

A question may be left in the minds of anti-vaccinationists, namely, Why is it that, in 1918 and 1919, when extensive vaccinations had been performed, the epidemic of smallpox occurred?

It should be known that, previous to those years, systematic yearly vaccinations of the public, as imposed duties on the regularly constituted bodies of vaccinators, was, to a large extent, confined to schoolchildren. There have been, therefore, a considerably large proportion of the population, especially of the younger element in the city but especially in the barrios (not entering the school) who had not been successfully immunized. This is shown by the fact, that altho about 75 per cent of the cases in the Division of Provincial Sanitation were among children under nine years of age, yet no case has developed among those in school (Annual Report, P. H. S., 1918, page 115).

When the epidemic began in 1918, it was observed that the infection became rapidly disseminated among the "unprotected" groups. My predecessor, therefore, increased the regular number of vaccinators to about 225 to perform intensive work in the provinces: for, in Manila where there had been previous, systematic, and yearly vaccinations done which, in 1918, included even children under one month old, the epidemic could be easily controlled. Table IV shows the rapidity of decline subsequent to the effective efforts in successful vaccinations in the city.

On the other hand, where there had been difficulties to successful vaccinations, the disease lingered for some time. These obstacles, particularly noted in the provinces and in Mindanao and Sulu, may be thus summarized:

1. The indifferent attitude and even flat refusal of the ignorant families to the vaccination process. Many of the illiterate mothers used to conceal their children, and thereby increased more the number of susceptibles among the young population. Such has also occurred in the City of Manila.

2. The lack of transportation facilities from town to town and from these to the barrios, especially in some of the Provinces of Mindanao and Sulu.

3. The lack of insufficient quantity of ice supply for the preservation of the potency of the vaccine virus under tropical conditions. As a result of the resulting deterioration, quite a number of the vaccinated failed to get the "take" and, therefore, were unprotected from the disease.

4. The religious beliefs of the Mohammedan (and pagan) population relative to the vaccination scar as sign of Christianity.

5. The probable faulty technique as a result of insufficient training on the part of vaccinators.

These obstacles are, however, gradually becoming overcome by systematic instructions, with the result that now, when the people as a whole accept willingly the anti-variolic vaccination, the incidence of smallpox in our communities is reduced to practically nil.

To visualize and appreciate more the effects of antivariolic vaccination, the following table, from the statistics of the City of Manila after the epidemic of 1918, gives great discrepancies between the morbidities and mortalities among the successfully vaccinated on one hand and those among the unsuccessfully or never-vaccinated on the other, thus:

TABLE V.—*Percentage of smallpox cases and deaths among the protected and unprotected*

Cases and deaths.	Protected.		Unprotected.		Total number.
	Number.	Percentage.	Number.	Percentage.	
Cases.....	177	13.85	1,149	86.65	1,326
Deaths.....	60	6.07	929	93.93	988

We should be aware, however, of the fact that, perhaps, very many of the cases and deaths under the "protected" might have had successful "takes" long ago, but might have, at the time of the outbreak, already lost their immunity. And, likewise, some of them might have been recently immunized but the strength of their immunity had been overpowered by the virulence of the infection.

The degree of susceptibility of the "protected" and "unprotected" groups may be shown in the following age-distribution of the cases and deaths:

TABLE VI.—*Age distribution (number and percentages) of the cases and deaths from smallpox in 1918 in the City of Manila, among the protected and unprotected*

Classification.	Under 1 year.		1 to 5 years.		6 to 10 years.	
	C.	D.	C.	D.	C.	D.
Successfully vaccinated.....	{Number.... 10	{4	{79	{38	{25	{7
	{Per cent.... 5.65	{6.87	{44.63	{63.33	{14.12	{11.67
Unsuccessfully vaccinated or never.	{Number.... 171	{161	{703	{607	{113	{69
	{Per cent.... 14.88	{17.33	{61.18	{65.34	{9.93	{7.43
Total and average.....	{Number.... 181	{165	{782	{645	{138	{76
	{Per cent.... 13.65	{16.68	{58.97	{65.22	{10.41	{7.68

Classification.	11 to 20 years.		21 years and over.		Total.	
	C.	D.	C.	D.	C.	D.
Successfully vaccinated.....	{Number.... 38	{9	{25	{2	{177	{60
	{Per cent.... 21.47	{15.00	{14.12	{3.33	{99.99	{100
Unsuccessfully vaccinated or never.	{Number.... 97	{60	{65	{32	{1,149	{929
	{Per cent.... 8.44	{6.46	{5.66	{3.44	{99.99	{100
Total and average.....	{Number.... 135	{89	{90	{34	{1,326	{989
	{Per cent.... 10.18	{8.98	{6.79	{3.44	{100	{100

From the foregoing table, the following has been constructed to show the discrepancy in the percentage fatality of the disease among the "protected" and the "unprotected," as compared with the average of the two, in each age-group:

TABLE VII.—*Number of deaths per 100 cases (percentage fatality) among the successfully vaccinated on one hand and the unsuccessfully and never-vaccinated on the other (from the cases and deaths in 1918 epidemic. City of Manila)*

Classification.	Under 1 year.	1 to 5 years.	6 to 10 years.	11 to 20 years.	21 years and over.	Total or average.
Protected.....	40.00	48.10	28.00	23.68	8.00	33.90
Unprotected.....	94.15	86.34	61.06	61.86	49.23	80.85
Total or average.....	91.16	82.48	55.07	51.11	37.78	74.58

Lastly, during 1921, of the 1,160 cases that occurred in the Provinces of Bukidnon, Misamis, Lanao, and Zamboanga, of the Division of Mindanao and Sulu, all but eight were among the unvaccinated. Incidentally, the eight vaccinated individuals who developed the disease were all from the last-named province, where the percentage of positive "takes" has been unusually low. And among 302 of the cases that sporadically occurred in the Provinces of Albay, Camarines Sur, Capiz, Cebu, Iloilo, Masbate, Mindoro, Negros Occidental, Negros Oriental, Pampanga, Romblon, and Sorsogon, of the Division of Provincial Sanitation, only 57 were among the vaccinated.

To summarize the foregoing, I may say:

1. That smallpox has never left the Islands since the time of the Spaniards; and that it has been occurring, during the American occupation, more or less endemically, except in 1918 when an outbreak began.

2. That the epidemic of 1918 was brought about by inevitable factors that enhanced the virulence of the infection then existing, among which might be mentioned the mobilization of the Philippine National Guard, the general turmoil of foreign elements that might have perhaps imported a fresh and more virulent strain, and the general depression as a result of misery and other diseases, besides the concomitant evil influences of the great World War.

3. That at the onset of the outbreak, there have been a large proportion of unimmunized population, especially children not entering the school, among whom the disease became relatively more prevalent; hence, the ease in the dissemination of the epidemic.

4. That we cannot admit the existence of a lack of coöperation on the part of provincial and municipal health officials and of the failure of sanitary personnel to comply with their duties and instructions given by their American superiors, for, there had been, as an evidence, more vaccinations performed since the passage of the Jones Act in 1916 than in a previously equal number of years.

5. That we do acknowledge, however, our failure to get a very high percentage of positive "takes," since it has been difficult to maintain indefinitely the potency of the vaccine virus under our tropical condition and since some of our vaccinators, even during the American Health Administration, had had little training in the technique of vaccination. Moreover, it has not been possible to ascertain before vaccination whether or not all in the community had been unimmunized against the disease.

6. That we have not allowed, since the resignation of my predecessor on December 31, 1918, anti-variolic vaccination to lag, for in 1919, 1920, and 1921, the total number and percentage of successful vaccinations performed had been more than those of any three-year period under American control.

7. That I followed his advice in continuing the systematic vaccination which he had begun in 1918 to include even children one month old or younger, with the result that in 1919 the total number and percentage (in terms of population) of positive "takes" were more than double those in 1918 under his administration.

8. That, on the other hand, I have even more extended the vaccination system and appointed more vaccinating parties and vaccinators in 1919 who did intensive and extensive work in the provinces and in Mindanao and Sulu, with the happy result that since last year, i. e. 1921, smallpox has been practically negligible in its occurrence and totally absent in the City of Manila.

9. That our failure in checking completely the epidemic in 1919, which was the continuation of the 1918 infection, in the provinces and in Mindanao and Sulu, has been due to (1) the indifferent attitude of many ignorant families, as in any other country, toward vaccination, (2) the lack of transportation facilities, (3) the lack of ice-supply to preserve the potency of the virus for a considerable length of time, (4) the beliefs of the Mohammedan population regarding vaccination as contrary to the principles of their religion, and (5) the faulty technique, perhaps employed by some of our inexperienced vaccinators.

10. That the concealment of children under school age, to escape vaccinations no longer prevails in the Islands. In fact, even the Moros of today submit themselves to the vaccination process.

11. That anti-variolic vaccination, if properly done, protects the inhabitants against the disease, diminishes its virulence, and, therefore, lessens fatal results in the communities. This assertion is sustained by the statistical results in Tables V, VI, and VII. Moreover, in Tables III and IV, it may be deduced that in the Division in which there has been the greatest percentage of positive "takes," the average morbidity and mortality rates have been the lowest, and vice versa. In other words, the percentages of negative "takes" have been observed to follow the curve of the morbidity and mortality rates from smallpox.

12. There should be, therefore, no room for doubts, on the part of the unthinking and pessimistic individuals, to disregard, as shown by our experience and results in this country, the immunizing value of anti-variolic vaccination against smallpox, since all statements or statistical figures (pertaining to this country) so far published to the contrary, have been, perhaps, due to the lack of insufficient trustworthy information.

Consequently, and in conclusion, we shall highly appreciate, if you will kindly publish this letter, in the name of the Philippine Health Service, in one of your issues or in such journals or the like that you may have preference to.

Very respectfully yours,

(Sgd.) V. Jesus,
Director of Health.

MISCELLANEOUS

LEPERS DISCHARGED

For the month ending September 15, 1922, there were 293 cases under anti-leprotic treatment in the San Lazaro Hospital. Of the 4 cases brought from Culion all were non-lepers. Eleven treated cases in the San Lazaro Hospital were declared negative; thirty-five received permanent discharge this month.

BARBERS FINED

For violation of section 728 of the Revised Ordinances of the city, the following were fined:

Ignacio Conves fined.....	₱10.50
Luciano Juson fined.....	5.00

ITINERANT VENDORS FINED

Two itinerant vendors have been fined for not having the corresponding sanitary permits.

A TUBERCULOSIS COMMITTEE AT CULION

On account of the frequency of pulmonary tuberculosis among the inmates of the Culion Leper Colony a Tuberculosis Committee has been created.

The organization of a Tuberculosis Committee is hereby announced. The purpose of this committee is to standardize, as far as possible, methods of dealing with tuberculosis patients in this Colony, to assist the individual physicians in the diagnosis of individual cases, to make more uniform the classification; and to initiate and, with the aid of other members of the staff, to carry out studies, clinical and experimental, on the relation of this most important complication of leprosy to that disease and its treatment.

This Committee will be composed of the Chief Physician (Chairman), the Chief Pathologist, the Supervising Physicians, and the Senior Physician of the General Hospital. It will act as a Committee of the whole in formulating general plans. In carrying out its functions in connection with diagnosis, the clinical members will serve, the senior member acting as chairman. One of the other members will act as secretary and will keep careful records of the proceedings and findings of both the Committee of the whole and the subcommittee.

PERSONAL NEWS

Surgeon Teodoro Dychitan has been directed to proceed by the first available transportation to Balanga, Bataan, to assume duties as District Health Officer thereof relieving Senior Surgeon Nicanor Victoriano who, upon being relieved, is requested to comply with the provisions of Special Order No. 7, paragraph 35.

Assistant Chief Nurse Tomasa Goduco, of the San Lazaro Hospital, has been temporarily detailed in the Zamboanga General Hospital, Division of Mindanao and Sulu. She will proceed to Zamboanga, Zamboanga, on the first available transportation.

GENERAL STATISTICS

[Unless otherwise stated these statistics are for the month of September, 1922]

ESTIMATED POPULATION OF THE CITY OF MANILA FOR 1922¹

BY NATIONALITIES

Nationality.	Population.
Americans.....	8,184
Filipinos.....	278,497
Spaniards.....	1,955
Other Europeans.....	1,120
Chinese.....	17,856
All others.....	2,186
Total.....	299,754

BY DISTRICTS

Health districts.	Population.
No. 1, Intramuros.....	36,856
No. 2, Meisic.....	102,678
No. 4, Sampaloc.....	48,651
No. 5, Tondo.....	79,477
No. 6, Paco.....	32,097
Total.....	299,754

¹ Estimated on the basis of last figures published by the Census Office.

METEOROLOGICAL REPORT FOR MANILA CENTRAL OBSERVATORY DEDUCED FROM HOURLY OBSERVATIONS, SEPTEMBER, 1922

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Date.	Pres- sure mean. ¹	Temperature.						Relative humidity.			
		In shade. ²				Underground.		Mean.	Daily mean maxi- mum.	Daily mean mini- mum.	Day.
		Absolute maxi- mum.	Day.	Absolute mini- mum.	Day.	0.50 m.					
		Mean.	°C.	°F.	°C.	°F.	8 a. m. mean.	2 p. m. mean.	°C.	°F.	Per cent.	Per cent.
1-10.....	mm. 757.56	27.2	32.2	7.8.9	23.3	6	30.4	86.6	81	81	10
11-20.....	53.70	26.7	31.2	15.20	23.2	13	29.8	84.5	78.7	78.7	16
21-30.....	57.82	26.2	32	24	22.7	25	29	87	82.3	82.3	21

¹ Corrected for instrumental error and for temperature and reduced to sea level. Correction to standard gravity, 1.52 mm.

² These values are taken from instrument mounted in the Observatory Park, 1.5 meters above ground.

BIRTHS REPORTED IN THE CITY OF MANILA

[Stillbirths not included]

Nationality.	Male.	Female.	Total.	Annual birth rate per 1,000.
Americans.....	1	5	6	23.31
Filipinos.....	527	421	948	42.30
Spaniards.....	2	2	4	12.45
Other Europeans.....	2	3	5	54.06
Chinese.....	30	23	53	38.14
All others.....	3	3	6	33.42
Total.....	563	457	1,020	41.43

BIRTHS BY DISTRICTS

Health districts.	Legitimates.			Illegitimates.			Grand total.	Annual birth rate per 1,000.
	Male.	Female.	Total.	Male.	Female.	Total.		
No. 1, Intramuros.....	116	79	195	7	7	14	209	69.04
No. 2, Meisic.....	90	75	165	8	8	16	181	21.46
No. 4, Sampaloc.....	95	83	178	11	3	14	192	48.05
No. 5, Tondo.....	165	127	292	11	14	25	317	48.56
No. 6, Paco.....	59	59	118	1	2	3	121	45.90
Total.....	525	423	948	38	34	72	1,020	41.43

Number of births attended by physician, living, 294; stillbirths, 22.

Number of births attended by midwife, living, 100; stillbirths, 3.

Number of births attended by family, living, 626; stillbirths, 15.

NUMBER OF DEATHS AND DEATH RATE PER 1,000 AMONG RESIDENTS IN THE CITY OF MANILA, BY NATIONALITIES

[Stillbirths not included]

Nationality.	Male.	Female.	Total.	Annual death rate per 1,000.
Americans.....	1	1	2	3.88
Filipinos.....	281	233	514	22.86
Spaniards.....	8	8	16	49.82
Other Europeans.....	1	1	2	10.81
Chinese.....	13	4	17	11.59
All others.....	2	2	4	11.14
Total.....	306	237	543	22.05

TOTAL DEATHS BY SOCIAL CONDITION, INCLUDING TRANSIENTS

Social condition.	Male.	Female.
Married.....	99	73
Divorced.....	.....	.....
Widowed.....	24	40
Single.....	231	148
Condition not stated.....	1	3
Total.....	355	264
Grand total.....	619	

Stillbirths.....	40
Number of deaths with medical attendance.....	331
Number of deaths without medical attendance.....	288

DEATHS BY AGES IN THE CITY OF MANILA

[Stillbirths not included]

Ages.	Residents.		Transients.		Total.
	Male.	Female.	Male.	Female.	
Under 30 days	51	23	1	.....	75
30 days to under 1 year	58	44	5	4	111
1 year to under 2 years	20	26	.....	1	47
2 years to 4 years	24	24	1	.....	49
5 years to 9 years	14	8	1	.....	23
10 years to 14 years	2	4	2	1	9
15 years to 19 years	12	8	3	8	26
20 years to 29 years	26	18	8	7	59
30 years to 39 years	20	20	5	7	52
40 years to 49 years	19	10	12	2	43
50 years to 59 years	23	13	6	2	44
60 years to 69 years	18	9	1	.....	28
70 years to 79 years	9	9	2	.....	20
80 years to 89 years	8	11	.....	.....	19
90 years to 99 years	2	8	.....	.....	10
100 years and over .....	.....	2	.....	.....	2
Age not stated .....	.....	.....	1	.....	1
Total	306	237	48	27	618

One male Filipino, 13 years of age, permanent residence unknown not included in this table.

DEATHS AND DEATH RATE PER 1,000, BY DISTRICTS INCLUDING TRANSIENTS

[Stillbirths not included]

Health districts.	Deaths.	Annual death rate per 1,000.
No. 1, Intramuros	122	40.80
No. 2, Meisic	93	11.08
No. 4, Sampaloc	106	26.52
No. 5, Tondo	242	37.07
No. 6, Paco	56	21.24
Total	619	25.14

[illegible]

X. Malformations.

150. Congenital malformations (stillbirths not included):
 (2) Congenital malformations of the heart

XI. Diseases of early infancy.

151. Congenital debility, icterus and sclerema:
 (1) Premature birth (not stillborn)
 (2) Congenital debility
 152. Other diseases peculiar to early infancy:
 (2) Other causes peculiar to early infancy

XII. Old age.

154. Senility
 XIII. Affections caused by external causes.

155. Suicide by poison
 167. Burns (conflagration excepted)
 169. Accidental drowning
 175. Traumatism by other crushing (vehicles, railways, landslides, etc.)

XIV. Ill-defined diseases.

189. Cause of death not specified or ill defined.

1	281	233	8	1	13	4	2	543
<hr/>								
Total								
<hr/>								
1	514		8	1	17		2	543
<hr/>								
Grand total								
<hr/>								

NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG TRANSIENTS IN THE CITY OF MANILA

[Stillbirths not included]

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
<i>I. General diseases.</i>													
1. Typhoid fever.....			3	3									6
27a. Beriberi, infantile.....			2										2
28. Tuberculosis of the lungs.....			10	5					1				17
29. Acute miliary tuberculosis.....	1		1										2
31. Abdominal tuberculosis.....			1	1									3
35. Disseminated tuberculosis.....			2										2
40. Cancer and other malignant tumors of the stomach, liver.....			1	1					1				3
42. Cancer and other malignant tumors of the female genital organs.....			2	1									3
<i>II. Diseases of the nervous system and of the organs of special sense.</i>													
61. Simple meningitis:													
(1) Simple meningitis.....													
64. Cerebral hemorrhage, apoplexy.....			2	1									3
68. Other forms of mental alienation.....			2										2
<i>III. Diseases of the circulatory system.</i>													
79. Organic diseases of the heart.....			1		1								2
80. Angina pectoris.....			2										2
<i>IV. Diseases of the respiratory system.</i>													
90. Chronic bronchitis.....													
91. Broncho-pneumonia.....			1	1									2
92. Pneumonia.....			1										1
<i>V. Diseases of the digestive system.</i>													
104. Diarrhoea and enteritis (under 2 years).....			1										1
105. Diarrhoea and enteritis (2 years and over).....			1						1				2
109. Hernias, intestinal obstructions.....			1										1
110. Other diseases of the intestines.....			1										1
117. Simple peritonitis (nonpuerperal).....				1									1

VI. Nonspecific diseases of the genito-urinary system and annera.

119. Acute nephritis.....	1	1	1	1	1	2
120. Bright's disease.....	1	1	1	1	1	1
123. Calculi of the urinary passages.....	1	1	1	1	1	1
124. Diseases of the bladder.....	1	1	1	1	1	1
129. Uterine tumor (noncancerous).....	1	1	1	1	1	1
131. Cysts and other tumors of the ovary.....	1	1	1	1	1	1

VII. The puerperal state.

135. Puerperal hemorrhage.....	1	1	1	1	1	1
136. Other accidents of labor.....	2	2	2	2	2	2
137. Puerperal septicaemia.....	1	1	1	1	1	1

VIII. Diseases of the skin and of the cellular tissue.

144. Acute abscess.....	1	1	1	1	1	1
-------------------------	---	---	---	---	---	---

IX. Diseases of the bones and of the organs of locomotion.

146. Diseases of the bones (tuberculosis excepted).....	1	1	1	1	1	1
148. Amputation.....	1	1	1	1	1	1

X. Malformations.

150. Congenital malformations (stillbirths not included): (2) Congenital malformations of the heart.....	1	1	1	1	1	1
---	---	---	---	---	---	---

XI. Diseases of early infancy.

151. Congenital debility, icterus and sclerema: (2) Congenital debility.....	2	2	2	2	2	2
---	---	---	---	---	---	---

XIII. Affections caused by external causes.

169. Accidental drowning.....	1	1	1	1	1	2
188. Homicide by cutting or piercing instruments.....	1	1	1	1	1	1
186. Fractures (cause not specified).....	1	1	1	1	1	1

Total.....	2	41	26	1	1	75
Grand total.....	2	67	1	1	4	75

INFANT MORTALITY

Causes of death.	Under 24 hours.	24 hours to under 36 hours.	36 hours to under 48 hours.	48 hours to under 14 days.	14 days to under 1 year.	Total.
4. Malaria.....					1	1
10. Influenza.....					3	3
14. Dysentery.....					1	1
24. Tetanus.....				4		4
27a. Beriberi, infantile.....				7	33	40
35. Disseminated tuberculosis.....					1	1
37. Syphilis.....					1	1
61. Simple meningitis:						
(1) Simple meningitis.....					5	5
89. Acute bronchitis.....					21	21
90. Chronic bronchitis.....					5	5
91. Broncho-pneumonia.....				1	20	21
92. Pneumonia.....					1	1
104. Diarrhoea and enteritis.....					8	8
119. Acute nephritis.....					1	1
150. Congenital malformations (stillbirths not included):						
(2) Congenital malformations of the heart.....				2		2
151. Congenital debility, icterus and scler- rema:						
(1) Premature birth (not still- born).....	10			5	1	16
(2) Congenital debility.....	11	5		19	19	54
152. Other causes peculiar to early infancy:						
(2) Other causes peculiar to early infancy.....				1		1
Total.....	21	5		39	121	186

ANTI-PLAGUE CAMPAIGN IN THE CITY OF MANILA

Number of spring traps set.....	24,041
Number of rats caught by spring traps.....	4,469
Number of cage traps set.....	720
Number of rat caught by cage traps.....	1
Number and kind of baits set (coconuts).....	24,761
Number of poison portions placed.....	28,941
Number of rats found poisoned.....	843
Number of rats killed by clubs and other weapons.....	2,262
Number of rats found dead from other causes.....	624
Total number of rats otherwise caught, found dead or killed.....	8,199
Total number of rats sent to the laboratory for examination.....	8,199
Total number of rats found positive for plague.....	0

**TYPHOID AND PARATYPHOID FEVER REPORTED DURING THE MONTH OF
SEPTEMBER, 1922, CITY OF MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts.										Total.
	No. 1		No. 2		No. 4		No. 5		No. 6		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	5	0	11	3	5	0	14	1	2	0	41
Female.....	3	0	6	1	7	0	9	0	2	0	29
Dead:											
Male.....	0	0	1	1	0	0	0	0	0	0	2
Female.....	0	0	0	0	0	0	0	1	0	0	1
Total:											
Male.....	5	0	12	4	5	0	14	1	2	0	43
Female.....	3	0	6	1	7	0	9	1	2	0	30
Grand total..	8	0	18	5	12	0	23	2	5	0	73

DEATHS

Sex.	Health districts.										Total.
	No. 1		No. 2		No. 4		No. 5		No. 6		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	0	0	3	1	0	0	2	1	1	0	8
Female.....	1	0	4	0	0	0	3	0	0	0	8
Total.....	1	0	7	1	0	0	5	1	1	0	16

Total cases reported within the month in the City of Manila.....	109
Resident cases.....	81
Non-resident cases.....	27
Foreign cases.....	1
Total deaths reported within the month in the City of Manila.....	22
Deaths among resident cases.....	16
Deaths among non-resident cases.....	6
Deaths among foreign cases.....	0
Total cases confirmed as typhoid fever.....	95
Autopsy.....	0
Blood culture.....	0
Clinically positive.....	63
Faces.....	6
Widal reaction.....	26
Cases confirmed as paratyphoid fever (stool examination).....	1
Cases not confirmed.....	18
Paratyphoid fever.....	Residents, Cases, None. Non-residents, Cases, 1; Death, 0.
Typhoid carriers: Living, 12; Dead body, 1.	

**DYSENTERIES REPORTED DURING THE MONTH OF SEPTEMBER, 1922,
CITY OF MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts.										Total.
	No. 1		No. 2		No. 4		No. 5		No. 6		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	1	0	3	0	3	1	1	0	0	0	9
Female.....	0	0	0	0	0	1	2	0	0	1	4
Dead:											
Male.....	0	0	1	0	0	1	1	0	1	0	4
Female.....	1	0	0	0	0	0	0	0	0	1	2
Total:											
Male.....	1	0	4	0	3	2	2	0	1	0	13
Female.....	1	0	0	0	0	1	2	0	0	2	6
Grand total..	2	0	4	0	3	3	4	0	1	2	19

DEATHS

Sex.	Health districts.										Total.
	No. 1		No. 2		No. 4		No. 5		No. 6		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	0	0	1	0	1	1	1	0	1	0	5
Female.....	0	1	0	0	1	1	0	0	0	1	4
Total.....	0	1	1	0	2	2	1	0	1	1	9

Total cases reported within the month in the City of Manila.....	20	20
Resident cases.....	20	
Non-resident cases.....	0	
Total deaths reported within the month in the City of Manila.....	9	9
Deaths among resident cases.....	9	
Deaths among non-resident cases.....	0	
Reported as:		
Acute dysentery.....	3	
Amoebic dysentery.....	3	
Bacillary dysentery.....	2	
Chronic dysentery.....	0	
Dysentery.....	11	
Erroneously reported as dysentery.....	1	
Total	20	20

**CONFIRMED CHOLERA CASES REPORTED DURING THE MONTH OF
SEPTEMBER, 1922, CITY OF MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts.										Total.
	No. 1		No. 2		No. 4		No. 5		No. 6		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Grand total..	0	0	0	0	0	0	0	0	0	0	0

DEATHS

Sex.	Health districts.										Total.
	No. 1		No. 2		No. 4		No. 5		No. 6		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total.....	0	0	0	0	0	0	0	0	0	0	0

Total cases reported within the month in the City of Manila.....		3
Non-resident cases.....	0	
Foreign cases.....	0	
Resident cases.....	3	
Resident cases confirmed as cholera.....	0	
Resident cases not confirmed (found negative).....	3	
Total deaths reported within the month in the City of Manila.....		0
Deaths among non-resident cases.....	0	
Deaths among foreign cases.....	0	
Deaths among resident cases confirmed as cholera.....	0	
Deaths among resident cases not confirmed.....	0	
Cholera carriers: None.		

**DIPHTHERIA REPORTED DURING THE MONTH OF SEPTEMBER, 1922,
CITY OF MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts.										Total.
	No. 1		No. 2		No. 4		No. 5		No. 6		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	1	0	0	0	0	0	0	0	1
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	1	0	0	0	0	0	0	0	1
Grand total..	0	0	1	0	0	0	0	0	0	0	1

DEATHS

Sex.	Health districts.										Total.
	No. 1		No. 2		No. 4		No. 5		No. 6		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total.....	0	0	0	0	0	0	0	0	0	0	0

Total cases reported within the month in the City of Manila.....	9
Resident cases.....	7
Non-resident cases (not confirmed).....	2
Resident cases confirmed as diphtheria.....	1
Resident cases not confirmed.....	6
Total deaths reported within the month in the City of Manila.....	0
Deaths among resident cases confirmed as diphtheria.....	0
Deaths among non-resident cases.....	0
Diphtheria carriers: 3 living.	

**OTHER COMMUNICABLE DISEASES REPORTED IN THE CITY OF MANILA
DURING THE MONTH OF SEPTEMBER, 1922**

RESIDENTS

Diseases.	Cases.		Deaths.	
	Male.	Female.	Male.	Female.
Malaria.....	7	0	3	0
Varioloid.....	0	0	0	0
Varicella.....	2	0	0	0
Smallpox.....	0	0	0	0
Measles.....	9	8	0	0
Whooping cough.....	0	0	0	0
Influenza.....	15	5	5	0
Bubonic plague.....	0	0	0	0
Beriberi.....	1	2	1	2
Beriberi, infantile.....	24	14	24	14
Pulmonary tuberculosis.....	90	53	65	42
Tuberculosis of all forms.....	10	5	10	5

**OTHER COMMUNICABLE DISEASES REPORTED IN THE CITY OF MANILA
DURING THE MONTH OF SEPTEMBER, 1922—Continued**

NON-RESIDENTS

Diseases.	Cases.		Deaths.	
	Male.	Female.	Male.	Female
Malaria.....	3	0	0	0
Varicoid.....	0	0	0	0
Varicella.....	2	0	0	0
Smallpox.....	0	0	0	0
Measles.....	1	1	0	0
Whooping cough.....	0	0	0	0
Influenza.....	4	1	0	0
Bubonic plague.....	0	0	0	0
Beriberi.....	0	0	0	0
Beriberi, infantile.....	2	0	2	0
Pulmonary tuberculosis.....	16	8	13	5
Tuberculosis of all forms.....	3	1	3	1

* All foreign cases.

REPORT ON THE DISTRIBUTION OF ASSORTED SERA AND VACCINES

Sera and vaccines.	On hand September 1, 1922.	Received during the month.	Total to be accounted for.	Distributed during the month.	Remaining at the end of the month.
Anti-diphtheric serum (units).....		100,000	100,000	100,000	
Anti-dysenteric serum (ampoules).....	13	65	78	60	18
Anti-tetanic serum (units).....		131,000	131,000	131,000	
Cholera vaccine (cc.).....	990	12,000	12,990	8,400	4,590
Dried vaccine virus (units).....	6,400	33,250	39,650	25,650	14,000
Fresh vaccine virus (units).....	118,000	200,000	318,000	177,100	140,900
Gonococcus vaccine (ampoules).....		402	402	402	
Mixed typhoid and cholera vaccine (cc.).....	800	36,000	36,800	36,660	140
Normal horse serum (ampoules).....		50	50	50	
Plague vaccine (ampoules).....					
Typhoid and paratyphoid vaccine (cc.).....					
Typhoid pure vaccine (cc.).....	5,880	9,000	14,880	12,720	2,160

**SMALLPOX VACCINATIONS IN THE CITY OF MANILA DURING THE MONTH
OF SEPTEMBER, 1922**

Health districts.	Total vaccina- tions.	Total inspec- tions.	Positive.	Negative.
No. 1, Intramuros.....	903	259	168	91
No. 2, Meisic.....	1,509	577	404	173
No. 4, Sampaloc.....	602	328	259	69
No. 5, Tondo.....	835	643	476	167
No. 6, Paco.....	837	372	251	121
Total.....	4,686	2,179	1,558	621

**CONSOLIDATED CHOLERA VACCINATIONS IN THE CITY OF MANILA FOR THE
MONTH OF SEPTEMBER, 1922**

(See consolidated table of MIXED VACCINATIONS in the City of Manila)

**CONSOLIDATED TYPHOID VACCINATIONS IN THE CITY OF MANILA FOR
THE MONTH OF SEPTEMBER, 1922.**

Districts.	Number of persons vaccinated.					
	Males.					
	Single injections.		Double injections.		Triple injections.	
	A.	C.	A.	C.	A.	C.
No. 1, Intramuros.....			252	513	1	2
No. 2, Meisic.....	6	3	9	1	8	2
No. 4, Sampaloc.....	1,208	969	918	831		3
No. 5, Tondo.....						
No. 6, Paco.....						
Total.....	1,214	972	1,179	1,345	9	7

Districts.	Number of persons vaccinated.						Total injections.		
	Females.								
	Single injections.		Double injections.		Triple injections.				
	A.	C.	A.	C.	A.	C.	Single.	Double.	Triple.
No. 1, Intramuros.....			3	741	6	3		1,509	12
No. 2, Meisic.....	2	1	12	4	15	7	12	26	32
No. 4, Sampaloc.....	893	469	517	486	27	37	3,539	2,752	67
No. 5, Tondo.....									
No. 6, Paco.....									
Total.....	895	470	532	1,231	48	47	3,551	4,287	111

**CONSOLIDATED MIXED (TYPHOID AND CHOLERA) VACCINATIONS IN THE CITY
OF MANILA FOR THE MONTH OF SEPTEMBER, 1922**

Districts.	Number of persons vaccinated.					
	Males.					
	Single injections.		Double injections.		Triple injections.	
	A.	C.	A.	C.	A.	C.
No. 1, Intramuros.....	715	815	224	526		
No. 2, Meisic.....	1,294	96	1,104	83		
No. 4, Sampaloc.....						
No. 5, Tondo.....	266	391	76	48		
No. 6, Paco.....	179	1,302	56	590	54	911
Total.....	2,454	2,604	1,460	1,247	54	911

Districts.	Number of persons vaccinated.						Total injections.		
	Females.								
	Single injections.		Double injections.		Triple injections.				
	A.	C.	A.	C.	A.	C.	Single.	Double.	Triple.
No. 1, Intramuros.....	147	609	112	454			2,286	1,316	
No. 2, Meisic.....	990	86	884	53			2,466	2,124	
No. 4, Sampaloc.....									
No. 5, Tondo.....	257	279	105	10			1,193	239	
No. 6, Paco.....	179	1,129	90	632	70	889	2,789	1,368	1,924
Total.....	1,573	2,103	1,191	1,149	70	889	8,734	5,047	1,924

NOTE.—A, means adults; C, children.

TOTAL VACCINATIONS OF SMALLPOX IN THE PROVINCES FOR THE YEAR, 1922¹

Provinces.	Vaccinations.	Inspections.	Positive.	Negative.
Abra.....	10,192	8,804	5,618	3,186
Agusan.....	6,282	4,518	2,040	2,478
Albay.....	58,682	38,076	25,807	12,769
Antique.....	14,588	12,846	8,398	4,448
Bataan.....	11,614	11,412	8,866	2,546
Batanes.....	716	645	169	476
Batangas.....	47,198	19,121	11,560	7,561
Bohol.....	37,965	30,041	19,497	10,544
Bukidnon.....	3,113	2,221	1,200	1,021
Bulacan.....	32,023	22,212	16,223	5,989
Cagayan.....	15,290	9,869	6,173	3,696
Camarines Norte.....	2,323	2,084	1,462	622
Camarines Sur.....	38,320	26,671	19,387	7,284
Capiz.....	38,981	35,528	26,218	9,310
Catanduanes.....	57,403	42,841	27,571	15,270
Cavite.....	17,056	16,408	10,878	5,535
Cebu.....	102,209	73,999	40,792	33,207
Cotabato.....	15,833	8,302	1,792	6,510
Culion Leper Colony.....	827	817	369	448
Davao.....	9,985	8,564	5,524	3,040
Ilocos Norte.....	19,106	16,606	7,146	9,460
Ilocos Sur.....	57,589	42,615	27,934	14,681
Iloilo.....	58,344	36,322	27,725	8,597
Isabela.....	9,549	7,523	2,711	4,812
Laguna.....	18,688	14,436	8,801	5,635
La Union.....	21,897	15,616	6,860	8,756
Lanao.....	6,736	4,245	2,855	1,390
Leyte.....	102,531	61,434	45,889	15,545
Marinduque.....	11,944	9,215	5,942	3,273
Masbate.....	9,479	1,891	962	929
Mindoro.....	10,760	8,336	4,953	3,383
Misamis.....	12,220	5,722	3,126	2,596
Mountain Province.....	17,834	10,395	7,223	3,172
Nueva Ecija.....	159,358	115,355	67,525	47,830
Nueva Vizcaya.....	3,147	3,038	2,320	718
Occidental Negros.....	37,484	26,365	14,104	12,261
Oriental Negros.....	84,223	54,599	33,214	21,385
Palawan.....	2,701	2,572	1,320	1,252
Pampanga.....	18,347	11,477	8,171	3,306
Pangasinan.....	154,674	137,977	71,826	66,151
Rizal.....	34,428	28,225	16,932	11,293
Romblon.....	13,034	9,434	5,774	3,660
Samar.....	17,973	10,648	5,621	5,027
Sorsogon.....	5,821	5,583	3,956	1,827
Sulu.....	3,191	2,856	1,813	1,043
Surigao.....	12,858	10,559	6,219	4,340
Tarlac.....	6,994	6,419	4,030	2,389
Tayabas.....	41,914	37,546	24,807	12,739
Zambales.....	9,078	8,657	5,199	3,458
Zamboanga.....	8,191	6,348	3,628	2,720
Total.....	1,490,693	1,086,993	667,625	419,368

¹ Compilation of reports received since January.

Other reports not yet received.

**CONSOLIDATED CHOLERA VACCINATIONS REPORTED IN THE PROVINCES
SINCE JANUARY, 1922¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Abra.....	1,715	2,059	3,774
Albay.....	19,306	10,121	29,427
Antique.....	3,750	2,851	6,601
Bataan.....	914	475	1,389
Batangas.....	10,958	9,613	20,571
Bohol.....	1,744	1,172	2,916
Bulacan.....	8,744	6,717	15,461
Cagayan.....	5,968	4,873	10,841
Camarines Norte.....	1,429	214	1,643
Capiz.....	5,493	2,956	8,449
Catanduanes.....	654	430	1,084
Cavite.....	7,104	4,192	11,296
Cebu.....	3,562	1,694	5,256
Cotabato.....	708	164	872
Davao.....	159	61	220
Ilocos Norte.....	403	666	1,069
Ilocos Sur.....	3,736	2,722	6,458
Iloilo.....	972	1,178	2,150
Laguna.....	5,130	7,664	12,794
La Union.....	3,854	2,564	6,418
Leyte.....	1,356	796	2,152
Marinduque.....	1,948	2,475	4,423
Mindoro.....	3,235	1,269	4,504
Misamis.....	1,422	731	2,153
Nueva Ecija.....	1,520	1,476	2,996
Nueva Vizcaya.....	676	949	1,625
Oriental Negros.....	3,759	4,285	8,044
Pampanga.....	4,584	3,847	8,431
Pangasinan.....	5,674	4,268	9,942
Rizal.....	19,751	11,225	30,976
Romblon.....	624	206	830
Sorsogon.....	1,310	703	2,013
Sulu.....	913	159	1,072
Tarlac.....	654	355	1,009
Tayabas.....	2,295	318	2,613
Zambales.....	2,704	2,393	5,097
Zamboanga.....	1,230	1,121	2,351
Total.....	139,958	98,962	238,920

¹ Compilation of reports received since January.

Other reports not yet received.

**CONSOLIDATED TYPHOID VACCINATIONS REPORTED IN THE PROVINCES SINCE
JANUARY, 1922¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Capiz.....	299	157	456
Cavite.....	36	11	47
Bulacan.....	1,187	59	1,246
Davao.....	3	.....	3
Ilocos Sur.....	1,002	851	1,853
Isabela.....	34	.....	34
Laguna.....	2,885	2,115	5,000
La Union.....	408	110	518
Pampanga.....	295	181	476
Pangasinan.....	937	271	1,208
Rizal.....	88	22	110
Total.....	7,174	3,777	10,951

¹ Compilation of reports received since January.

Other reports not yet received.

**CONSOLIDATED MIXED (TYPHOID AND CHOLERA) VACCINATIONS REPORTED
IN THE PROVINCES SINCE JANUARY, 1922¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Abra.....	669	1,211	1,880
Antique.....	1,540	2,631	4,171
Bataan.....	582	450	1,032
Batanes.....	98	14	112
Batangas.....	8,375	6,843	15,218
Bohol.....	622	89	711
Bulacan.....	2,424	2,823	5,247
Cagayan.....	2,663	1,769	4,432
Camarines Norte.....	441	157	598
Capiz.....	249	106	355
Cavite.....	3,938	2,669	6,607
Cebu.....	3,267	1,028	4,295
Cotabato.....	1,204	186	1,390
Davao.....	683	247	930
Ilocos Norte.....	6,270	3,050	9,320
Ilocos Sur.....	8,842	3,196	12,038
Iloilo.....	12,078	9,055	21,133
Isabela.....	567	182	749
Laguna.....	730	234	964
Lanao.....	4,393	3,319	7,712
La Union.....	6,274	3,636	9,910
Leyte.....	1,783	1,567	3,350
Marinduque.....	634	1,463	2,097
Masbate.....	661	252	913
Misamis.....	631	727	1,358
Nueva Ecija.....	2,080	2,183	4,263
Nueva Vizcaya.....	678	623	1,301
Oriental Negros.....	516	1,101	1,617
Pampanga.....	7,869	7,107	14,976
Pangasinan.....	6,579	3,032	9,611
Rizal ²	8,116	2,020	10,136
Romblon.....	428	217	645
Samar.....	3,716	347	4,063
Sorsogon.....	1,742	989	2,731
Surigao.....	976	750	1,726
Tarlac.....	1,991	1,041	3,032
Tayabas.....	5,146	1,157	6,303
Zambales.....	1,669	1,586	3,255
Zamboanga.....	894	1,074	1,968
Total.....	112,018	70,131	182,149

¹ Compilation of reports received.² Corrected.

Other reports not yet received.

**SMALLPOX REPORTED FROM THE PROVINCES DURING THE MONTH OF
SEPTEMBER, 1922**

(No case no death reported during the month)

**CHOLERA REPORTED FROM THE PROVINCES DURING THE MONTH OF
SEPTEMBER, 1922**

(No case no death reported during the month)

**OPERATION OF THE SANITARY ENGINEERING OFFICE IN THE CITY OF
MANILA DURING THE MONTH OF SEPTEMBER, 1922**

	Health districts.					
	No. 1	No. 2	No. 4	No. 5	No. 6	Total.
	Intra- muros.	Meisic.	Sampaloc.	Tondo.	Paco.	
Orders pending August, 1922:						
Minor.....	21	7	18	35	19	100
Sewer.....	15	42	14	2	3	76
Vacating.....		35	8		2	45
Filling.....	5	2	8	8	6	29
Total.....	41	86	48	45	30	250
Orders issued during the month:						
Minor.....	6	8	6	2	3	25
Sewer.....		1	4			5
Vacating.....	3					3
Filling.....			2			2
Total.....	9	9	12	2	3	35
Grand total.....	50	95	60	47	33	285
Orders completed during the month:						
Minor.....	7	4	5		6	22
Sewer.....	2	3	1			6
Vacating.....		7				7
Filling.....						
Total.....	9	14	6		6	35
Orders cancelled during the month:						
Minor.....	1					1
Sewer.....						
Vacating.....		1				1
Filling.....						
Total.....	1	1				2
Orders pending during the month:						
Minor.....	19	11	19	37	16	102
Sewer.....	13	40	17	2	3	75
Vacating.....	3	27	8		2	40
Filling.....	5	2	10	8	6	31
Total.....	40	80	54	47	27	248
Strong materials, plans approved:						
New buildings including additions and alterations.....	13	5	26	68	13	125
Permits for minor building constructions:						
Approved.....	19	19	23	14	14	89
Disapproved.....	3	3	9	6	2	23
New buildings completed.....	18	9	24	30	9	90
Light and mixed material constructions:						
Approved.....			13	1	9	23
Disapproved.....			2		2	4
Total number of buildings projects passed upon.....	53	36	97	119	49	354
Prosecutions:						
Conviction.....			*1			1
Dismissal.....						
Amount of fines.....			P5			P5
Plumbing permits issued.....	31	36	20	26	15	128
Plumbing projects completed.....	34	22	23	57	11	147
Premises connected to the Sanitary Sewer to August, 1902.....	1,549	2,694	965	467	383	6,058
Premises connected during the month.....	10	3	7	6	1	27
Total.....	1,559	2,697	972	473	384	6,085

* Order 21-435.

NOTE.—Intramuros including Ermita and Malate. Meisic including Sta. Cruz, Binondo, and San Nicolas. Sampaloc including Quiapo, San Miguel, and Sta. Mesa. Paco including Pandacan and Sta. Ana.

THE GOVERNMENT OF THE PHILIPPINE ISLANDS
DEPARTMENT OF PUBLIC INSTRUCTION

MONTHLY BULLETIN
OF THE
PHILIPPINE HEALTH SERVICE

VOL. II OCTOBER TO DECEMBER, 1922 Nos. 10-12

The keystone of a nation's progress is sanitation and education

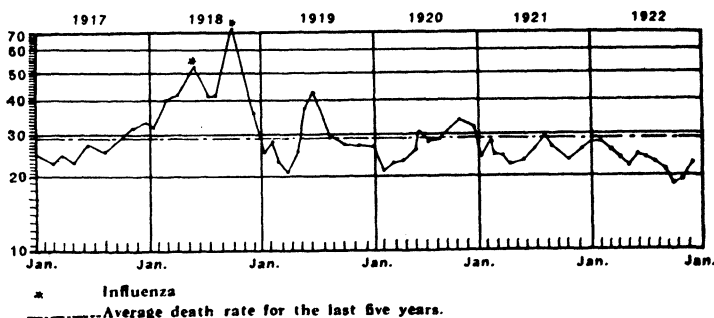


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MANILA
BUREAU OF PRINTING
1923

COMMITTEE ON THE MONTHLY BULLETIN, P. H. S.

S. V. DEL ROSARIO, *Assistant Director of Health, Chairman*

J. P. BANTUG, *Senior Medical Inspector, P. H. S., Member*

L. LOPEZ RIZAL, *Senior Medical Inspector, P. H. S., Member*

M. V. ARGUELLES, *Senior Surgeon, P. H. S., Secretary*

PHILIPPINE HEALTH SERVICE

Manila, April 7, 1922

Administrative Order }
No. 4 }

Paragraph 7. Dr. L. Lopez Rizal, Assistant Chief, Office of Statistics, Doctor Leach of the Rockefeller Foundation, Major Roland A. Davison of the Medical Corps, U. S. Army, Dr. Proceso Gabriel, Medical Officer in charge of Health Station No. 5, Tondo, and Dr. M. Arguelles, Bacteriologist, San Lazaro Hospital, are hereby constituted a Committee on Investigation and Research in connection with the present typhoid situation in the City of Manila. Doctor Lopez will serve as Chairman, and Doctor Arguelles as Secretary of the Committee. The Committee will meet at the call of its Chairman. Doctor Leach and Major Davison are appointed by direction of the Governor-General.

The Committee will make such recommendations and suggestions in writing to the Director of Health as the result of their investigations may dictate, which recommendations and suggestions will be carried out, when approved by the Director of Health, by the Executive Committee appointed in the next paragraph of this order. A complete report of the work of the Committee should be rendered at the end of their investigation.

Paragraph 8. Dr. Andres Catanjal, Chief, Division of Sanitation, City of Manila, Doctor Leach of the Rockefeller Foundation, and all medical officers in charge of health stations are hereby constituted an Executive Committee charged with the carrying out of such recommendations and suggestions as may have been offered by the Committee on Research and Investigation in connection with the present typhoid situation and have been approved by the Director of Health. Doctor Catanjal will serve as Chairman of this Committee, and meetings will be held at the call of the Chairman.

Doctor Leach is appointed by direction of the Governor-General.

Paragraph 9. Dr. Salvador V. del Rosario, Assistant Director of Health, is hereby directed to supervise the work of the committees created in paragraphs 7 and 8 of this order.

V. JESUS
Director of Health

MONTHLY BULLETIN
OF THE
PHILIPPINE HEALTH SERVICE

VOL. II OCTOBER TO DECEMBER, 1922 Nos. 10-12

**TYPHOID INVESTIGATION, EPIDEMIOLOGICAL
REPORT ON TYPHOID OF 1922**

Prepared by Dr. L LOPEZ RIZAL¹

By THE INVESTIGATION COMMITTEE

I. INTRODUCTION

Pursuant to the instructions given by Special Order No. 4, paragraph 7 of the Director of Health, wherein a Committee on Typhoid Investigation has been created and organized, and in compliance with Resolution No. 3, approved by the Committee on June 26, 1922, the present report is hereby submitted, discussing all the findings of the Committee and presenting several recommendations for the control of the disease.

This part of the report will contain all the findings of the Committee with a summary thereof. In order, however, to have a better understanding of the facts herein discussed, it is considered an important matter to have an idea of the typhoid situation before the present epidemic.

By Special Order No. 11, dated November 24, 1916, a Committee for the investigation of typhoid fever in the City of Manila has been appointed; and after six months' survey, the Committee rendered two reports containing among other things, the following conclusions:

1. Typhoid fever and para-typhoid fever occur at nearly equal rates in the City of Manila.
2. Water and milk supplies, as well as imperfect sewage, proved to have slight or no bearing at all upon the incidence of typhoid and para-typhoid fever. *Contact-infecting*, on the other hand, seems a well-established fact in nearly all cases (previous cases or carriers).

¹ By resolution of the Committee, Dr. Lopez Rizal was requested to prepare this report.

3. The serological tests (Widal-Gruber reaction) has been found to be the only reliable diagnostic test both for patients and presumptive carriers. Blood specimens should be submitted in amounts of not less than five to six drops, collected in capillary tabs, furnished by the Bureau of Science. The dried-drop method is inaccurate and not scientific. The examination of stools alone is unsatisfactory.

4. The isolation of cases (preferably in hospitals) seem to be highly commendable.

5. Anti-typhoid and anti-paratyphoid vaccination for exposed persons proved of prophylactic value in instances where no other accurate means of protection can be furnished to a large number of contracts.

Later on, several studies were made in the City of Manila. The Annual Reports of the Health Service contain the most important facts discussed in connection with the matter.

In brief, we may say, judging from the above-mentioned reports, that:

1. Typhoid fever is more prevalent in the City of Manila during the last than during the first six months of every year, as may be seen in the following table:

TABLE I.—*Prevalence of typhoid fever in Manila for the last six years*

Year.	First six months.	Percent-age.	Second six months.	Percent-age.
1916.....	94	38.68	149	61.32
1917.....	121	34.77	227	65.23
1918.....	199	38.42	319	61.59
1919.....	271	56.69	207	43.31
1920.....	135	26.26	379	73.74
1921.....	316	46.61	362	53.39
Total.....	1,136	40.88	1,643	59.12

2. The incidence of typhoid fever is larger among males and among persons between 10 and 30 years of age, the number being about 70 per cent of the cases. The average incidence per 100,000 population is 162.

TABLE II.—*Incidence of typhoid fever per 100,000 population in Manila*

Year.	Estimated population.	Cases.	Incidence per 100,000.
1916.....	274,986	243	88.37
1917.....	279,114	348	124.68
1918.....	283,242	518	182.88
1919.....	287,370	478	166.34
1920.....	291,498	514	176.33
1921.....	295,626	678	229.34
Average.....	285,306	463	162.28

3. The fatality of cases ranges from 23.72 to 40.33 within the last six years.

TABLE III.—*Fatality of typhoid fever during the last six years in Manila*

Year.	Per cent.	Year.	Per cent.
1916.....	40.33	1919.....	36.98
1917.....	37.91	1920.....	36.49
1918.....	23.72	1921.....	35.54

4. Contact-infection is the main source of infection and the most important factor in the prevalence of typhoid fever.

With these facts in view, the task imposed upon the Committee on Typhoid Investigation, recently appointed to determine the cause or causes of the prevalence of the infection and their sources as well, seems to be a very simple one, when we take into consideration the studies and investigations previously made. However, because of the concurrence of some new factors which have to be considered with regard to this matter, this investigation becomes more complex in the City of Manila than elsewhere. Consequently, the members of the Committee, in the course of this investigation, have disregarded the previous findings and made an almost thorough investigation, not only of the well-known factors that have influenced the causation of typhoid fever, but also, of all those factors that played a rôle either directly or indirectly in the prevalence of the fever in the City of Manila so as to eliminate any possible error in the appreciation of the facts, although the members were influenced by the conclusions arrived at in previous investigations.

The studies and investigations performed by the Committee were made on all the cases reported during the first six months of this year, altho the Committee was not appointed until April 7, when the typhoid situation was so alarming as to call the attention of the public.

It would not be amiss to say, however, that, in this connection, the Health Service could not begin the investigation earlier on account of the concurrent epidemic of cholera, which prevailed from November, 1921, to February, 1922; and because the cholera epidemic had a more spectacular effect on the public than had the typhoid outbreak, the Health Service was pressed to give the former preferent attention.

The studies and investigations performed by the Committee refer to the study of all cases that occurred in the City of Manila from January to June of this year, with special attention to (a) the incidence, prevalence, etc.; (b) the probable sources of infection; (c) all other factors more or less responsible for the

typhoid infection in the city; (d) the typhoid immunization; and (e) the measures necessary to carry out in the city in order to have more definite results in the eradication of the typhoid fever.

II. PRESENT EPIDEMIC

1. CASES REPORTED IN THE CITY OF MANILA

The total number of cases reported in the City of Manila from January to June is 1,037. Out of this number, only 971 were confirmed as typhoid cases by either one of the following diagnosis; clinical, bacteriological, and anatomical. The total 971 cases confirmed as typhoid includes not only all the cases reported among the residents of the City of Manila, but also the provincial cases that for one reason or another were brought to the city purposely for hospital treatment, as may be seen in the following table:

TABLE IV.—*Cases of typhoid fever reported in the City of Manila from January to June, 1922*

Residence.	Total reported.	Total confirmed.	Total deaths.
Residents.....	874	825	229
Provincial or foreign.....	163	146	39
Total.....	1,037	971	268

2. DISTRIBUTION

City cases were found widely distributed in the five sanitary districts of the City of Manila. There is, however, a great prevalence of the disease in the districts situated on the north side of the Pasig River; namely, Districts Nos. 2, 4, and 5. The attached map of the City of Manila, where typhoid cases were carefully spotted, may give an idea of the distribution of the cases within the city.

3. INCIDENCE BY AGES

Out of a total of 971 cases reported, there was a total of 650 cases in the age-group of 11 to 30 years, with the resulting percentage of 66.94 per cent of the total number of cases reported as typhoid in the City of Manila. This percentage gives an idea of the group of population mostly affected by this infection; namely, the school age and the most active and vigorous group from 20 to 30 years of age of the population. The

total number of cases by age-group and their percentages are given in the following table:

TABLE V.—*Incidence by age*

Age.	Number of cases.	Percent-age.
1-10 years.....	184	13.80
11-20 years.....	356	36.66
21-30 years.....	294	30.27
31-40 years.....	90	9.27
41-50 years.....	32	3.30
51-60 years.....	9	.92
61-over.....	9	.93
Unknown.....	47	4.84
Total.....	971	100.00

(a) *Incidence by sex*

The percentage of cases among males is greater during the last six months than the percentage among females. This ratio is also observed in the study of incidence by sex during the last five years. The excess of cases among males over that of among females is, however, not large enough to add any important datum for the investigation carried out by the Committee as shown by this table, except possibly the consideration that males have more opportunities to get infected on account of their more active life.

TABLE VI.—*Incidence by sexes*

Months.	Male.	Female.	Total.
January.....	47	38	85
February.....	84	67	151
March.....	151	95	246
April.....	111	109	220
May.....	91	47	138
June.....	88	43	131
Total.....	572	399	971
Percentage.....	58.21	51.09	100.00

(b) *Incidence by Occupation*

Out of the same number of cases, there were 212 students, 154 laborers, 169 food-handlers, and 436 cases among persons of other occupations. The incidence of cases as indicated by the figures shows a remarkably large percentage among students in comparison with those in other occupation. In the classification by occupations shown in the following table, under the group of laborers and food-handlers, all other occupations having

relation or are by nature similar to these occupations, were included.

TABLE VII.—*Typhoid fever cases by occupations*

Months.	Students.	Laborers, including mechanics, chauffeurs, drivers, cigar makers and all other manual workers.	Foodhandlers, including housekeepers, servants, cooks, tienda, and market sellers, houseboys.	All others. ¹	Total.
January.....	20	16	17	32	85
February.....	39	22	20	70	151
March.....	65	38	39	104	246
April.....	36	25	39	120	219
May.....	26	23	28	61	138
June.....	26	30	26	49	131
Total.....	212	154	169	436	971
Percentage.....	21.83	15.86	17.40	44.91	100

¹ This column includes employees, professionals, merchants, teachers, musicians, sailors, nurses, etc., and children or persons of old age without known occupations.

The 21.83 per cent of the cases among students means that a great part of the effort of the Service to prevent the infection should be directed towards: (a) prophylactic protection of this group of the community, and (b) preferential attention to the education of the students regarding preventive medicine and sanitation. The attention of the teachers and corresponding authorities should be called to this fact.

(c) *Incidence by nationality*

The attached table showing the cases classified by nationalities gives the incidence of cases according to race. Two important facts are observed in this table; namely, the high incidence among Japanese (Column "All others") and the high incidence during March among Japanese and Chinese.

TABLE VIII.—*Typhoid fever cases by nationality (including non-residents)*

Months.	Filipinos.	Americans.	Chinese.	Spanish.	Other Europeans.	All others.	Total.
January.....	69	0	1	0	0	1	71
February.....	128	1	1	0	1	0	131
March.....	197	0	14	1	0	12	224
April.....	173	1	3	0	0	4	181
May.....	104	1	6	0	0	3	114
June.....	99	2	1	0	1	1	104
Total.....	770	5	26	1	2	*21	825
Annual Incidence per 1,000 population.....	5.63	3.19	2.91	1.02	3.56	19.21	5.50

* All of these cases are among Japanese.

(d) Incidence by districts

As it has been said elsewhere in this Report, the cases of typhoid and para-typhoid fever are widely distributed thruout the city. There has been observed, however, special prevalence in the districts situated in the north side of the Pasig River. Table No. X gives a comprehensive idea of the distribution of typhoid fever in the five districts of the City of Manila, with the number of cases and deaths by sexes.

District No. 4 is ahead of all other districts of the city in point of greatest infection. District No. 2 follows and No. 5 is the next. District No. 6 is the least infected district of the City of Manila. Only three districts, Nos. 2, 4, and 5, on the north side of the Pasig River reported 80.73 per cent of the total cases of typhoid fever in the whole City of Manila. The same order is observed more or less with regard to the incidence per thousand population in these districts. All these figures are shown on the following table:

TABLE IX.—*Distribution of cases in the districts of the City of Manila (residents only)*

District.	Cases.	Percent- age.	Annual inci- dence per 1,000 popu- lation.
No. 1.....	93	11.27	5.04
No. 2.....	220	26.67	42.86
No. 4.....	232	28.12	95.88
No. 5.....	214	25.94	53.86
No. 6.....	66	8.00	4.12
Total.....	825	100.00	5.50

No special reason can be given to explain the special prevalence of the infection on the north side of the river. The studies of all the factors that have a more or less bearing upon the causation and development of typhoid fever give no explanation except, perhaps, as regards the lack of an effective sanitation in the above-mentioned districts, and partly at least, referring to District No. 2, to the density of population in this district.

4. PREVALENCE

Table No. X gives the total number of cases and deaths by sexes and by districts during the last six months. The analysis of this table shows that beginning in January, the infection jumped up to reach its climax during the month of March, slowly and steadily to decline in the following months. As a matter

of fact, and in comparison with the usual prevalence of typhoid fever in the City of Manila, we feel ourselves safe to say that the prevalence of this epidemic is unusual and unrecorded so far.

TABLE X.—Confirmed cases and deaths from typhoid and para-typhoid fever in Manila (residents only)

[January to June, 1922]

Month.	Sex.	District 1.		District 2.		District 4.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
January.....	{ Male ..	6	1	9	5	11	9
	{ Female.	4	2	4	1	16	4
February.....	{ Male ..	14	3	21	4	23	8
	{ Female.	3	1	13	5	29	9
March.....	{ Male ..	10	1	48	16	35	7
	{ Female.	9	1	18	7	23	7
April.....	{ Male ..	11	4	26	4	24	2
	{ Female.	12	1	21	6	31	5
May.....	{ Male ..	11	3	19	5	10	4
	{ Female.	1	0	9	0	14	7
June.....	{ Male ..	9	1	21	5	13	4
	{ Female.	3	0	11	7	3	2
Total.....	{ Male ..	61	13	144	39	116	34
	{ Female.	32	5	76	26	116	34
Grand total.....		93	18	220	65	232	68

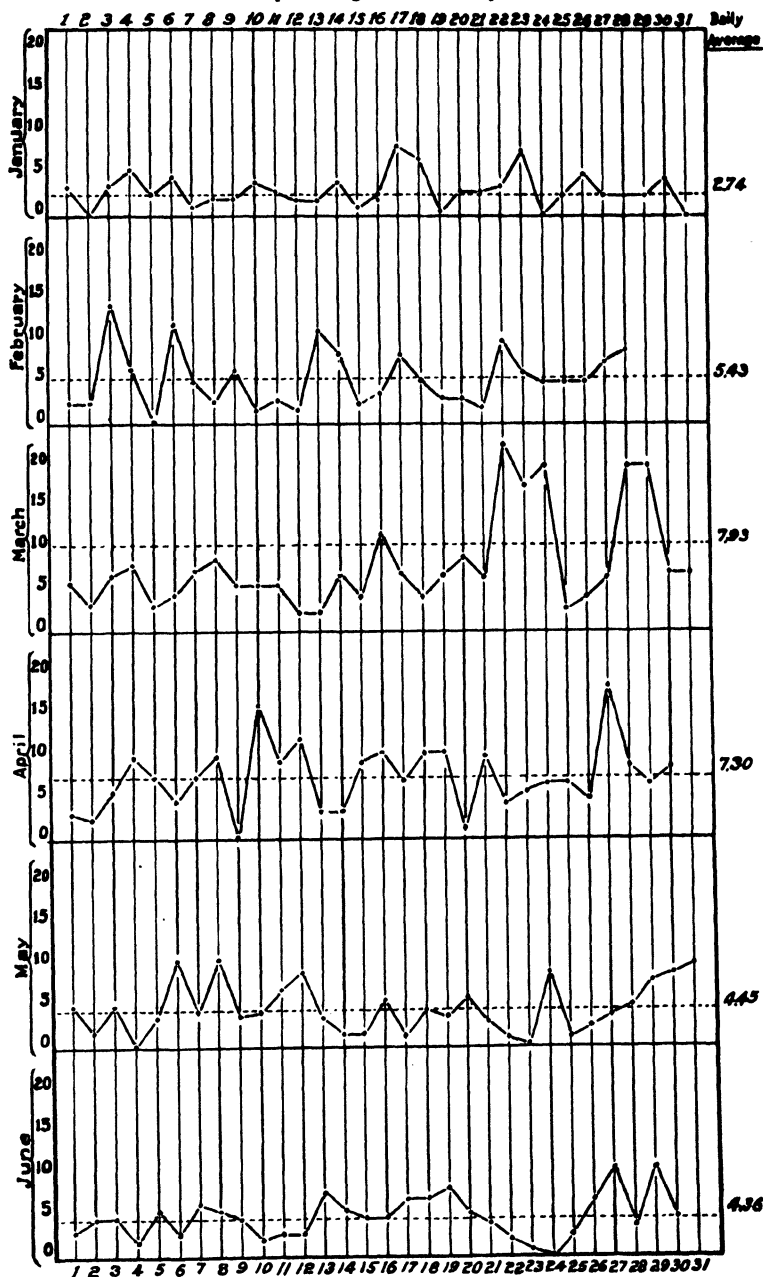
Month.	Sex.	District 5.		District 6.		Total.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
January.....	{ Male ..	10	2	4	4	40	21
	{ Female.	3	3	4	1	31	11
February.....	{ Male ..	14	2	4	3	76	20
	{ Female.	9	2	1	0	55	17
March.....	{ Male ..	41	10	8	3	142	37
	{ Female.	23	5	9	5	82	25
April.....	{ Male ..	22	5	5	3	88	18
	{ Female.	23	6	6	1	93	19
May.....	{ Male ..	26	3	10	4	76	19
	{ Female.	13	4	1	0	38	11
June.....	{ Male ..	19	6	9	2	71	18
	{ Female.	11	3	5	1	33	13
Total.....	{ Male ..	132	28	40	19	493	133
	{ Female.	83	23	26	8	332	69
Grand total.....		214	51	66	27	825	229

The attached graphic curve of this prevalence will give a more comprehensive idea of the course of this epidemic as compared with the average monthly prevalence during the last five years. Another diagram giving the daily cases and the daily average number of cases by month is also attached. The rates of the prevalence, with the percentage by month and the annual incidence per 100,000 population, are given in the following table. This table shows a sharp rise of cases for the month of March where we had an annual incidence of 880.37 cases per 100,000 population in the City of Manila. This is the highest incidence ever reached in the history of typhoid infection in the Philippines.

PHILIPPINE HEALTH SERVICE
OFFICE OF STATISTICS AND EPIDEMIOLOGY

DAILY CASES (POSITIVE) OF TYPHOID IN MANILA-1922

[Including non residents]



Daily Average for the last 5 years 1.89

PHILIPPINE HEALTH SERVICE
OFFICE OF STATISTICS AND EPIDEMIOLOGY
PREVALENCE OF TYPHOID IN THE CITY OF MANILA

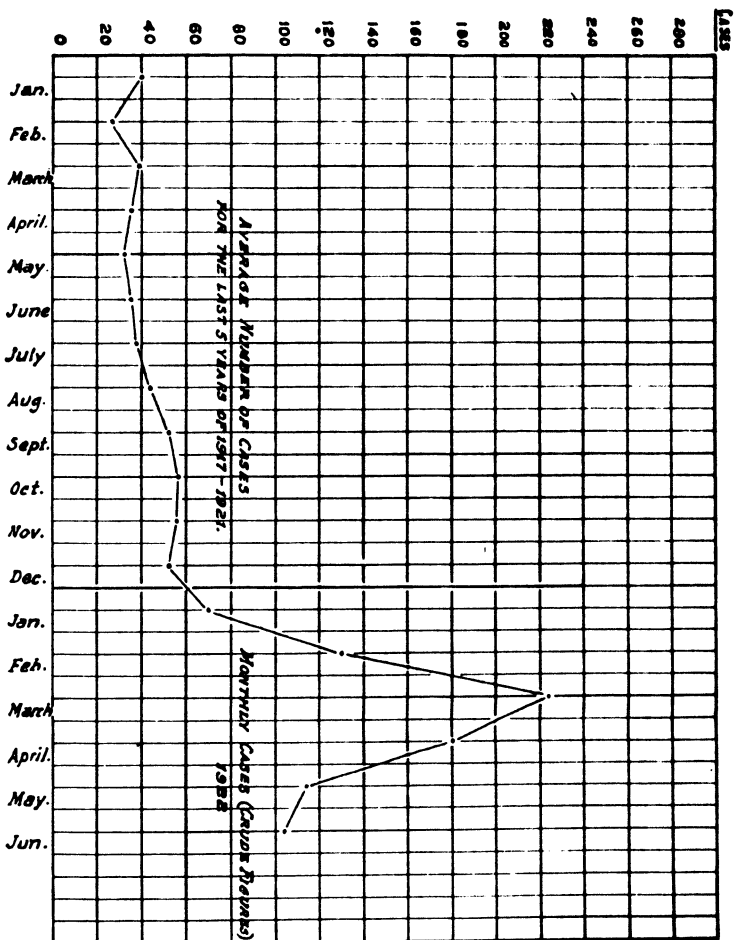




TABLE XI.—*Prevalence by months*

Month.	Total cases.	Percentage.	Annual incidence per 100,000 population.
January.....	71	8.61	278.85
February.....	181	15.88	569.87
March.....	224	27.15	880.87
April.....	181	21.49	734.25
May.....	114	13.81	448.10
June.....	104	12.61	442.53
Total.....	825	100.00	550.44

In connection with the typhoid situation in the city, the matter of prevalence deserves a further consideration. The average daily incidence of typhoid fever for the last five years, or what we might call the "prevalence index," was 1.39. This is an index far below the 4.56 average obtained for the first six months of this year (1922). If we take into account, on one hand, the deficiency in the reporting system, and, consequently, the low percentage of cases reported during the last five years, and on the other hand, (a) the undeniable existence of an outbreak, (b) the improvement in our reporting system of the present year, together with the consideration that our general imperfectly-computed death-rates of the last six months are but evenly comparable with the rates of corresponding months of the last five years, we feel ourselves safe to assure that the "prevalence index" (endemicity index) of typhoid fever in the City of Manila is a little more or less than two cases a day, or 2.46 per 1,000 population as incidence.

(a) CASES TREATED IN THE HOSPITALS AND CASES CARED FOR AT HOME

In order to have a clear view of the typhoid situation and to enable the investigators to come to a critical judgment of the difficulties encountered by the Service in connection with the anti-typhoid campaign, it was that of relative importance to make a study of the cases treated in hospitals as well as the cases treated at home and the fatality thereof: the cases reported living and reported when already dead, and also the cases according to the time elapsed from the onset of the disease to the date it was reported to the Service. Many cases of typhoid fever were not reported by hospitals and physicians, and many cases, if ever reported, are reported so late that the disease is in the last stage, or else, when the patient was already dead or discharged from the hospitals. Our Tables Nos. XII, XIII, and XIV show the number and percentages of cases treated in the hospitals and in private homes; the number of cases reported

living and reported dead; and the number of patients classified according to the time or stage of the disease at the time the cases were reported. The cases taken to hospitals constitute more than 80 per cent of the total number of cases reported in the City of Manila. Any one will clearly see that the Service has had a hard time in controlling the disease because the large percentage of these cases were not reported, or if reported, were reported late. The number of cases reported in the City of Manila which is 88.36 per cent of the cases that were reported while the patients were alive, give an aggregate number of cases out of which a great majority were reported during the last stage of the disease. It was, therefore, late for the Service to have an effective control at the time these cases were reported.

TABLE XII.—*Confirmed cases and deaths from typhoid and para-typhoid fever in Manila from January to June, 1922*

[Residents only]

Month.	Sex.	Case at—				Total.	
		Hospital.		Home.			
		Case.	Death.	Case.	Death.	Case.	Death.
January.....	{ Male ..	33	16	7	5	40	21
	{ Female..	24	15	7	6	31	11
February.....	{ Male ..	64	17	12	3	76	20
	{ Female..	43	10	12	7	55	17
March.....	{ Male ..	120	33	22	4	142	37
	{ Female..	60	22	22	3	82	25
April.....	{ Male ..	72	14	16	4	88	18
	{ Female..	71	11	22	8	93	19
May.....	{ Male ..	65	16	11	3	76	19
	{ Female..	28	7	10	4	38	11
June.....	{ Male ..	60	14	11	4	71	18
	{ Female..	27	10	6	3	33	13
Total.....	{ Male ..	414	110	79	23	493	133
	{ Female..	253	65	79	31	332	96
Grand total.....	{ Male ..	667	175	158	54	825	229
	{ Female..						
Percentage.....	{ Male ..	80.85	76.42	19.15	23.58	100.00	100.00
	{ Female..						

TABLE XIII.—*Confirmed cases and deaths from typhoid and para-typhoid fever in Manila from January to June, 1922*

[Residents only]

Reported.	January.	February.	March.	April.	May.	June.	Total.	Percentage.
Living.....	51	115	196	170	100	97	729	88.36
Dead.....	20	16	28	11	14	7	96	11.64
Grand total.....	71	131	224	181	114	104	825	100.00

TABLE XIV.—Cases of Typhoid Fever classified by groups of ages and by the time elapsed from onset to date reported¹

Reported within—	1-10		11-20		21-30		31-40		41-50	
	R.	D.	R.	D.	R.	D.	R.	D.	R.	D.
First week.....	25	1	45	10	48	10	11	4	9	.....
Second week.....	28	4	57	22	53	14	22	5	5	.....
Third week.....	11	3	48	12	25	13	4	3	3	.....
Fourth week.....	7	.....	20	3	16	2	7	.....	.....	.....
Fifth week.....	23	.....	44	2	19	6	10	.....	2	.....
Dead.....	17	.....	40	.....	44	.....	7	.....	5	.....
Not verified.....	13	2	41	12	30	14	16	1	6	2
Total.....	107	27	255	101	191	103	70	20	25	7

Reported within—	51-60		61 over.		Unknown.		Total.	
	R.	D.	R.	D.	R.	D.	R.	D.
First week.....	.....	.....	.....	.....	1	.....	139	25
Second week.....	.....	.....	1	1	1	1	167	47
Third week.....	1	1	1	.....	.....	.....	93	32
Fourth week.....	1	.....	1	.....	.....	.....	52	5
Fifth week.....	3	.....	1	.....	.....	.....	102	8
Dead.....	.....	3	.....	2	.....	.....	.....	118
Not verified.....	.....	.....	2	.....	43	1	151	32
Total.....	5	4	6	3	45	2	704	267

NOTE.—R stands for recovered. D stands for dead.

¹ This table includes all cases reported in Manila (residents and transients).

5. MORTALITY

The annual crude death rate of typhoid fever corresponding to the first six months of this year in the City of Manila is 1.528 per 1,000 population. This ratio is certainly the highest mortality rate from typhoid fever ever attained in the City of Manila since the organization of the Bureau of Health after the American occupation. From 1904 to date, the incidence as well as the mortality from typhoid fever have been noticed to have increased from year to year. The main factor influencing this phenomenon was noted to have been the improvement in the reporting system of the Service. The increase, however, in the mortality and in the incidence during this year recognizes some other factors which are to be discussed later in the course of this report.

(a) Mortality by Districts

The mortality of typhoid fever in the different districts of the city shows that, in order of higher mortality, District No. 4 is ahead in the list, followed by Districts Nos. 6, 5, and 2, District No. 1 having the lowest mortality. One important fact is noted in the rates registered for the different districts; that is, the order observed in regard to the incidence per 1,000 population. While by reason of the mortality rate, District No. 6

occupies one of the highest places, the incidence in this District is the lowest observed among the other districts in the City of Manila. The same thing occurs if we note the order observed by districts for reason of the case fatality from typhoid fever, as may be seen in the following table:

TABLE XV.—*Case fatality and mortality from typhoid fever by district*

Districts.	Cases.	Deaths.	Fatality percentage of cases.	Mortality per 1,000 population.	Incidence per 1,000 population.
No. 1.....	93	18	19.36	0.977	5.04
No. 2.....	220	65	25.00	1.266	42.86
No. 4.....	232	68	29.31	2.795	95.38
No. 5.....	214	51	23.83	1.283	53.86
No. 6.....	66	27	40.91	1.682	4.12
Total.....	825	229	27.76	1.528	5.50

This fact can not be explained unless it is admitted that there were some more cases that were not reported in this district (No. 6). The mortality by nationalities is shown in the following table:

TABLE XVI.—*Case fatality and mortality by nationalities*

[Residents only]

Nationalities.	Cases.	Deaths.	Fatality percentage of cases.	Mortality per 1,000 population.	Incidence per 1,000 population.
Filipinos.....	770	205	26.62	1.50	5.63
Americans.....	5	0	0	0	3.19
Chinese.....	26	18	50.00	1.46	2.92
Spaniards.....	1	0	0	0	1.02
Other Europeans.....	2	2	100.00	3.56	3.56
All other.....	* 21	* 9	42.85	12.81	19.21
Total.....	825	229	27.76	1.53	5.50

* All Japanese

A remarkable fact is noticed in the annual mortality per 1,000 population observed in the people of different nationalities. The highest mortality is among the Japanese (see all others), it being more than 12 per 1,000 population followed by the mortality among Europeans other than Spaniards, which is 3.56. If we compare the mortality by nationalities with the incidence per 1,000 population, it will appear that there is no correlation between the former and the latter. This lack of correlation, which is most remarkably noticed in the case of Americans and Filipinos, is explained by the more or less early treatment given to the cases.

(b) *Case Fatality*

Out of the total number of resident cases reported in the City of Manila, we estimated a general case fatality of 27.76 cases.

However, the case fatality observed in the different groups of the population is as follows: Fatality among males is lower than the fatality among females, the former being 26.98 against 28.92 of the latter per 100 cases. The fatality by nationalities as shown in one of the preceding tables indicates a higher fatality among Europeans, Chinese, and Japanese as compared with that of other nationalities.

The higher fatality observed during this epidemic has been that of District No. 6 (see one of the tables above), which amounts to 40.91, followed by that observed for Districts No. 4, 2, and 5, with No. 1 having the lowest fatality. An explanation of the apparent difference in the fatality of the different districts has been advanced elsewhere in this report. The attention of the reader, however, is called to the fact that this explanation is merely a presumption, since no positive data could be secured for its verification.

The well-known law of mortality observed in epidemics, to wit, "Higher fatality is always observed at the beginning and at the end of any epidemic," has proved to be a fact in this epidemic. The fatality from typhoid fever, as it is in the present epidemic, is, according to this law, higher at the onset and at the declination of the epidemic than at any other time, as may be seen in the following table of fatality by months:

TABLE XVII.—*Case fatality from typhoid fever by months*

Months.	Cases.	Deaths.	Percentage of fatality.
January.....	71	32	43.66
February.....	181	87	28.24
March.....	224	62	27.68
April.....	181	37	20.44
May.....	114	30	26.32
June.....	104	31	29.81
Total.....	825	229	27.76

(c) FATALITY BY SEXES AND HOSPITAL AND HOUSE FATALITY

As supplementary to the study of the fatalities, there have been also estimated the fatalities among cases treated in hospitals and among those treated in private houses; the fatality by groups of ages, and the case fatality in groups of cases classified according to the duration of time that elapsed from the onset of the disease to the date of the report. The importance of these figures should not be lost sight of in connection with the set of recommendations to be submitted to control the disease. We have found a case fatality of 26.24 among cases treated in hospitals, while among those treated in private houses the fatality

is higher, reaching 34.80 of the cases. This higher fatality, undoubtedly, may be reduced by an educational campaign and by employing every effort to convince the people of the necessity of a hospital treatment in cases of typhoid fever.

TABLE XVIII.—*Case fatality from typhoid fever*

[Residents only]

	Cases.	Deaths.	Case fatality.
In hospitals.....	667	175	26.24
In private houses.....	158	54	34.18
Males.....	493	133	26.98
Females.....	332	96	28.92

(d) *Fatality in Relation to the Time the Report is given*

On the other hand, it is not only necessary that the cases be treated in hospitals to get a lower mortality but it is also a prime factor for the purpose intended (the control of the disease) to have every case reported earlier; that is, at the beginning of the disease. The following table was worked out to determine the influence on the fatality of the delay in reporting the case.

TABLE XIX.—*Case fatality among cases classified by the time the report was made*

[All cases reported]

Reported within the—	Cases.	Deaths.	Fatality per 100 cases.
First week.....	164	25	15.24
Second week.....	214	47	21.96
Third week.....	125	32	25.60
Fourth week.....	57	5	8.77
Fifth week.....	110	8	7.27
Not verified.....	183	32	17.49
Dead.....	118	118	100.00
Total.....	971	267	27.50

A careful study of this table will show that the earlier a case is reported, the lower the case fatality is. Taking, for example, the group of cases of typhoid fever reported within the third week of the disease, we have a marked increase of the fatality; out of 125 cases, 32 died giving a fatality of 25.60. On the contrary, out of 164 cases reported within the first week and 240 cases reported within the second week, there were, respectively, 25 and 47 deaths, or a corresponding fatality of 15.24 and 21.96 per 100 cases. The lower fatality observed among the cases reported within the fourth and fifth weeks is explained by the fact that the majority of these cases, with all probability, were reported during the period of convalescence.

(e) *Fatality by Age*

In figuring out the fatality by groups of age in this epidemic, the same relation as that observed in epidemics of the past years, as regard the fatality of the age-group of 20 to 30 years, has been noted. During the last five years, the fatality by groups of ages is more or less the same, as in the figures in the table below:

TABLE XX.—*Fatality by groups of ages*

[All cases included non-residents]

Groups of ages.	Cases.	Deaths.	Percentage of fatality.
1 to 10 years.....	134	27	20.15
11 to 20 years.....	356	101	28.37
21 to 30 years.....	294	103	35.03
31 to 40 years.....	90	20	22.22
41 to 50 years.....	32	7	21.87
51 to 60 years.....	9	4	44.44
61 and over.....	9	3	33.33
Unknown.....	47	2	4.26
Total.....	971	267	27.50

The analysis of this table shows that, excepting among the aged persons, a greater incidence occurs within the age-groups of 11 to 20 (school age) and the ages from 21 to 30. The fatality of the latter group, however, is larger than the former, apparently due to the larger number of cases, in the group of school age taken to hospitals for treatment as compared with that in the other groups. Typhoid fever among aged persons usually register more fatality than in any other group of ages, altho with a relatively lower incidence.

III. CASES AMONG PERSONS WHO HAVE PREVIOUSLY BEEN INNOCULATED AGAINST TYPHOID FEVER

From reports received in the Office of Epidemiology, there appear to be 74 cases occurring in persons who, according to the reports, have received some sort of inoculations, without being sure of the kind of vaccine used. Special investigations, performed to verify the kind and efficacy of vaccines used in these persons, have shown that out of the 74 persons, only 27 have had anti-typhoid injections previous to the onset of the disease, the rest having had anti-cholera vaccinations.

The attached table of cases of typhoid fever among persons that have had one or more typhoid inoculations shows all particulars regarding these cases. A study of this table shows that there were only seven persons who have had a complete series of vaccinations, that is, seven cases in which a relative immunity

can be expected to have been induced by complete inoculations and 20 of them with incomplete vaccinations. On working out the incidence among vaccinated and nonvaccinated persons and comparing these figures as shown in the following table:

TABLE XXI.—*Incidence in vaccinated and nonvaccinated persons*

Population.		Cases among ¹ —			Annual incidence ² per 1,000 population.		
Nonvaccinated.	Vaccinated.	Nonvaccinated.	Vaccinated.		Nonvaccinated.	Vaccinated.	
			Completed only.	All vaccinated		Completed only.	All vaccinated.
267.896	32.858	798	7	27	5.97	0.22	0.83

¹ A person vaccinated and considered still keeping immunity at the onset.

² City cases only.

³ Computed on vaccinated population.

the value of typhoid inoculations may be seen. Among nonvaccinated persons, we have 5.97 cases per 1,000 population, while among incompletely vaccinated persons 0.83 cases per 1,000 population and only 0.22 cases per 1,000 population were observed among persons who have had the complete series of vaccinations.

Much more remarkable is the effect of anti-typhoid vaccinations noted in persons, if we compare the fatality and mortality observed among persons completely vaccinated with the fatality and mortality among nonvaccinated persons. The table copied below shows that out of seven cases previously and completely vaccinated, no deaths have been registered. Out of those who have incomplete inoculations only, four cases recovered with a fatality of 20 per cent and a mortality of 0.12.

No.—	No. of injections.	Dose and kind of vaccine.	Date of last injection.	Vaccinated by—	Date of onset of illness.	Termination.		Name.	Address.
						Recov- ered.	Died.		
1.	1	1 cc. T. A. B.	March 15, 1922.	Dr. F. Tuason	March 0.	Yes.	.....	L. R.	787 Int. España.
2.	1	1 cc. T. C.	Feb. 24, 1922.	Dr. Villarica	April 1.	Yes.	.....	M. M.	161 Victoria.
3.	3	2-½ cc. T. C.	March 27, 1922.	Station No. 5.	April 21.	Yes.	.....	Y. A.	16 R. A. Reyes.
4.	2	2 cc. T. C.	{1st—2-24-22. 2nd—4-18-22.	Station No. 1.	April 18.	Yes.	.....	M. C.	223 Gral. Luna.
5.	1	1 cc. T. C.	March 26, 1922.	Station No. 5.	April ?	Yes.	.....	A. S. D.	1132 A. Rivera.
6.	2	1-½ cc. T. A. B.	March 16, 1922.	Dr. Gabriel	May 6.	Yes.	.....	M. S.	289 Int. Quezada.
7.	1	1 cc. T. C.	April 8, 1922.	Station No. 4.	May 2.	Yes.	.....	A. R.	229 Int. G. Tuason.
8.	1	1 cc. T. C.	April 19, 1922.	Station No. 1.	April 27.	Yes.	.....	E. B.	280 Tennessee.
9.	1	1 cc. T. C.	March 16, 1922.	Dr. Simpaio.	May 6.	Yes.	.....	M. I.	315 Esquerre.
10.	1	1 cc. T. C.	April 18, 1922.	Dr. Santos.	May 4.	Yes.	.....	P. R.	2232 Herran.
11.	1	1 cc. T. C.	May 13, 1922.	Vacc. in Antipolo.	May 18.	Yes.	.....	L. P. R.	355 Solis.
12.	2	2 cc. T. C.	May 1, 1922.	Dr. Tuason.	June 5.	Yes.	.....	M. C.	229 Int. G. Tuason.
13.	1	1 cc. T. A. B.	March 0, 1922.	Station No. 5.	May 30.	Yes.	.....	B. F.	664 Int. Velasquez.
14.	2	2 cc. T. C.	{1st—5-13-22. 2nd—5-30-22.	In Antipolo. In San Lazaro Hospital.	May 30.	Yes.	.....	E. P.	355 Solis.
15.	1	1 cc. T. A. B.	April 0, 1922.	Dr. Moreta	June 8.	Yes.	.....	J. O.	51 L. Guerrero.
16.	1	1 cc. T. C.	April 20, 1922.	Dr. Santos	June 2.	Yes.	.....	P. C.	2807 Herran.
17.	2	2 cc. T. C.	March 27, 1922.	Dr. Gabriel	June 10.	Yes.	.....	P. S.	431 Int. Velasquez.
18.	2	2 cc. T. C.	June 8, 1922.	Not known.	June 16.	Yes.	.....	E. D.	633 Zacateros.
19.	1	1 cc. T. C.	May 12, 1922.	In Antipolo, Rizal.	June 1.	Yes.	.....	E. S.	937 Bascuay.
20.	1	1 cc. T. C.	May 27, 1922.	Station No. 6, Dr. Santos	June 2.	Yes.	.....	J. D.	368 Vaita.
21.	1	1 cc. T. C.	May 7, 1922.	Dr. C. Reyes	June 7.	Yes.	.....	N. D.	128 Gundo.
22.	2	2 cc. T. C.	March 23, 1922.	Dr. Simpaio.	June 17.	Yes.	.....	J. S.	503 Magdalena.
23.	1	1 cc. T. C.	May 2, 1922.	Dr. C. Reyes.	June 13.	Yes.	.....	J. V.	125 Gundo.
24.	1	1 cc. T. C.	June 17, 1922.	Dr. Caro	June 22.	Yes.	.....	J. D.	Normal Hall.
25.	1	1 cc. T. C.	March 26, 1922.	Not known.	June 26.	Yes.	.....	L. J.	1414 Ascarra.
26.	1	1 cc. T. C.	May 20, 1922.	Dr. Penaballa.	May 22.	Yes.	.....	F. M.	711 Lepanto.
27.	1	1 cc. T. A. B.	May 6, 1922.	Dr. Reyes	May 23.	Yes.	.....	I. F.	348 Barcelona.

TABLE XXII.—Fatality and mortality (among vaccinated compared with that of all cases)

Classification.	Cases.	Death.	Fatality. Per cent.	Mortality. Per cent.
Completely vaccinated.....	7	0	0	0
Incompletely vaccinated.....	20	4	20.00	^b 0.124
Not vaccinated.....	798	225	28.19	^c 0.842

^a City cases only.

^b Estimated on vaccinated population.

^c Estimated on not vaccinated population.

From a careful examination of the attached table, it is observed that all the cases of typhoid in previously immunized persons usually occur within a few days after the date of the last inoculation, there being some cases in which, if records are to be relied on, the date of the last injection and that of the onset were recorded on the same day. A three months' period is the longest one observed to have elapsed from the injection to the date of onset. Altho these cases are usually mild, the fact, however, that in the majority of them, there were very few days of interval between the dates of onset and of injections, aroused the suspicion of the public as to whether or not vaccination was a factor in the actual causation of typhoid fever. Apparently such is the case, if we do not take into consideration that the majority of these cases were, previous to their immunization, contacts of former cases and can, therefore, be reasonably presumed to be in their incubation period when the last injection was given.

IV. SPECIAL INVESTIGATION ON A REPRESENTATIVE GROUP OF CASES

Besides the statistical figures and data obtained from the particulars secured from every individual case of typhoid fever during the last six months, we have made special investigations of a representative group of cases amounting to a total of 587 cases. This special investigation was performed by nurses and sanitary inspectors following the attached form and after they had been given instructions and special lectures thereon.

The investigation of 587 cases was made disregarding whether a case is a permanent or transient resident of the City of Manila, and without selecting any group of the population. The purpose of this investigation is specially to obtain more specific information and to verify the data obtained in our preliminary investigation in regard to factors which presumably have taken part in the causation of typhoid fever, the sanitary conditions of the houses, and also the condition of isolation and nursing existing in private houses. The results of this investigation have been tabulated, with the discovery that out of the total of 587 cases investigated, 52.81 per cent of the cases are shown to have used

artesian water, 49.91 per cent ice cream, only 6.47 per cent used raw fresh milk, 87.39 per cent have not had their meals but at their homes, and 12.61 per cent occasionally had their meals outside in restaurants and in other public places. (See Table XXIII.) In regard to the other data, no other tables have been prepared for this special investigation as no other important information can be added to the discussed data given in this report.

TABLE XXIII.—*Relation of cases to the kind of water, milk, food, etc. used by the patients within 30 days before onset. (From January to June, 1922, inclusive, out of 587 cases investigated)*

	Number.	Percentage.
Water:		
Artesian.....	310	52.81
City.....	243	41.40
Distilled.....	23	3.92
Surface.....	6	.85
Not stated.....	6	1.02
Total cases investigated.....	587	100
Milk:		
Canned.....	287	48.49
Fresh—		
Raw.....	38	6.47
Boil or pasteur.....	38	6.48
No milk used.....	224	38.16
Total cases investigated.....	587	100
Ice cream:		
Peddlers.....	202	34.41
Private houses or parlors.....	91	15.50
No ice cream used.....	294	50.09
Total cases investigated.....	587	100
Ice drop.....	39	6.64
Halohalo, mongo and maiz mixed with ice, etc.....	4	.68
Raw vegetables.....	34	5.79
Oysters and other shellfish.....	82	13.97
Meals:		
Outside (restaurants, etc.).....	74	12.61
Home.....	513	87.39
Total cases investigated.....	587	100

V. SOURCES OF INFECTION

In regard to the sources of infection, the table copied below is the result of our investigation:

TABLE XXIV.—*Sources of infection of all confirmed cases*

	Number.	Percentage.
Out of city.....	148	15.24
Actual case.....	118	12.15
Convalescent carrier.....	8	.82
Chronic carrier ¹	11	1.13
Neighboring cases ²	19	1.96
Not traceable ³	667	68.69

¹ Two months after recovery from attack, considered chronic carrier. These were presumed carriers for having been sick with typhoid 2 months or more previous to the secondary case, altho not actually found harboring germs.

² Presumed to have contracted the disease thru indirect means, possibly by flies or by actually visiting cases in the neighborhood.

³ Altho infection was contracted within the city limits, the particular source could not be traced.

In connection with this investigation, particular attention has been given to any relationship existing between the cases investigated and any previous or actual case among members of the family or among persons in the same household. The same connection has been looked into with regard to the relation existing with any carrier. According to the table, no definite sources of infection could have been detected except in 31.31 per cent of the cases, 15.24 per cent of them seems to have acquired the infection out of the city during the trips made thru the provinces or while in summer resorts surrounding the city, within 30 days before onset; the remaining percentage out of 31 per cent appeared to have acquired the infection either from actual cases or from carriers distributed as shown in the table. In the preparation of this table, it has been assumed that two months after recovery, typhoid cases were considered chronic carriers. It must be borne in mind, also, in making the interpretation of this table, that in 19 cases stated herein, who have contracted the infection from neighboring cases, they were assumed to have contracted the disease from these cases by means of distant transmission, as by flies and other means of the same nature or by actually visiting the patients. The 667 cases whose sources of infection have not been traced, are, however, infection contracted within the city limits, probably due to infected water, milk, food, or to cases and carriers not discovered.

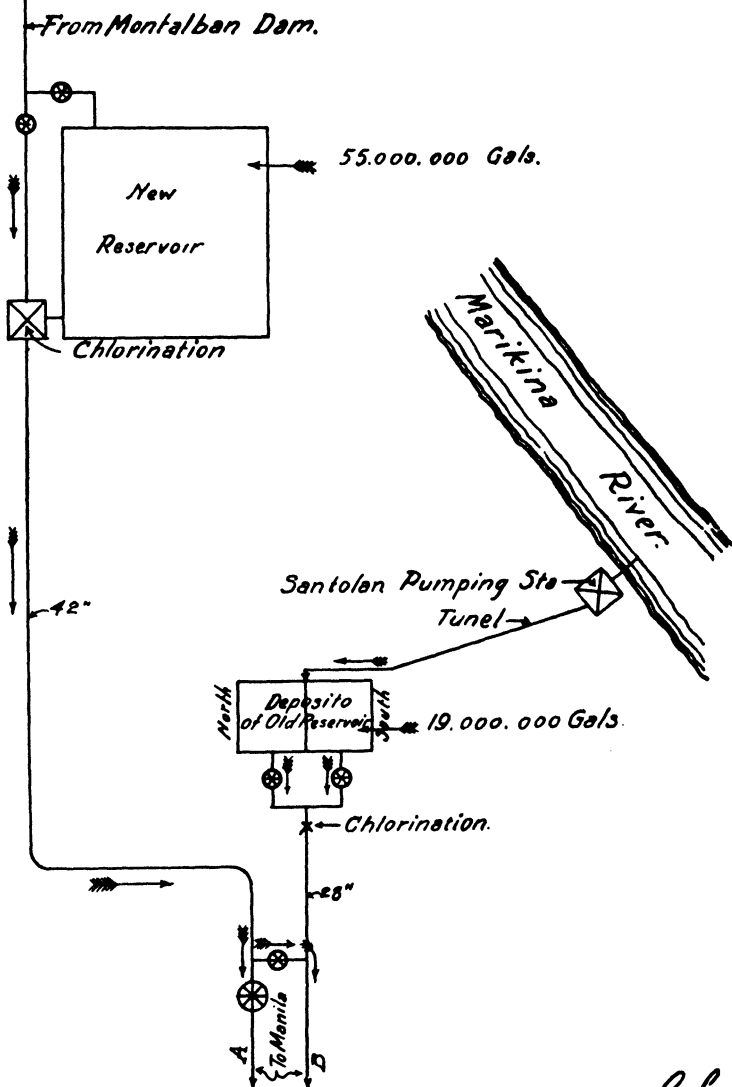
In connection with the investigations regarding the sources of infection, collateral investigations of all potential sources of infection have been made by the Investigating Committee on typhoid fever, chiefly to find out an explanation of the 68.69 per cent of cases where the infection could not be directly traced to man. The plan as carried out by the members of the Committee was to investigate: the water and ice supply, the milk supply, soft drinks and other beverages, food, especially oysters and similar foodstuffs, waste disposal, the relation of flies and garbage to the typhoid infection, etc.

(a) WATER SUPPLY

The population of the City of Manila is supplied with water from three different sources; namely, (a) water from "Metropolitan Water District," including the old Carriedo water supply, (b) artesian water from the artesian wells of the city and of neighboring town, and (c) water from distillation plants.

Metropolitan Water District.—The water from the Metropolitan Water District is supplied to the City of Manila ordinarily from one single source, which is the Montalban Reservoir. The

PHILIPPINE HEALTH SERVICE
OFFICE OF SANITARY ENGINEERING.



Date Aug. 26, 1922

Drawn by A. Libitong
Traced

SKETCH SHOWING RESERVOIRS & DISTRIBUTION
SYSTEM OF CITY OF MANILA WATER-SUPPLY

h. m. m.
Sen. Eng.



attached sketch will give a fair idea of the source and location of the reservoirs supplying water to the population of the City of Manila. As may be seen from the sketch, the new reservoir of 55,000,000 gallons' capacity stores the water by means of the Montalban Dam. A chlorination plant is placed near the reservoir for the treatment of the water before going into the main pipes to the City of Manila. The same disposition is more or less observed in relation to the old water-supply of the City of Manila from Santolan. A pumping station is operated near the Santolan River which pumps the water up to the old reservoir of 19,000,000 gallons' capacity at San Juan del Monte. Another chlorination plant has been established to treat the water in this old reservoir before going to the main pipes. Altho there is a connection between the main pipes from the above-mentioned reservoirs, we might distinctly follow the places supplied by the main pipe from Montalban and the main pipe from the Santolan River. The main pipe from Montalban distributes water to the Districts of Sampaloc, Santa Cruz, Binondo, San Nicolas, Tondo, and Intramuros; while the Districts of San Miguel, Quiapo, Sta. Mesa, Malate, Ermita, Paco, and Pandacan receive water from the main pipe of the old reservoir of San Juan del Monte. During the rainy season, the whole City of Manila, by closing the connection with the old reservoir, is supplied with the water from the new reservoir; while during the dry season the water coming from the old Carriedo Water Works is mixed with the water from the new reservoir for distribution to the City of Manila. Taking into consideration the high pressure of the water coming from the new reservoir, it may be presumed that the districts supplied by the main pipe from the new reservoir receive a kind of water resulting from the mixture of the Santolan and Montalban water, while the districts receiving water from the main pipe of the old reservoir get their supply almost exclusively from the Santolan pumping station. We insist on the description of the water system of the City of Manila, with a view to giving a slight idea and a better understanding of the relation of the water supply with the typhoid infection, which will be discussed later. The City of Manila, therefore, receives water which, while it has been treated with calcium hypochlorite (at 1 to 1,600,000 rate) is, however, unfiltered. In this connection, we wish to call the attention of the reader to the present chlorination plant, in which the water is treated *in a crude, to say haphazard, way of mixing the hypochlorite solution with the water.*

About 22 million gallons of this water are consumed every day in the City of Manila.

The pipe distribution within the city limits is shown in red lines in the attached blue-print of the City of Manila.

Artesian water.—The whole amount of artesian water consumed in Manila comes from 19 public artesian wells in the city, including the Government Ice Plant Well, two private and four artesian wells located in the surroundings of Manila, such as those of San Pedro Macati, Caloocan, Marilao, and San Juan del Monte. The water from these places are carried to private houses in tin receptacles or in demijohns by water-carriers within the City of Manila. In a general way, we may say that artesian wells, as ultimate sources of water, are in good condition; the careless handling thereof, however, coming to be the important factor in the contamination of the water. This fact will be discussed later.

The average amount of artesian water consumed in the City of Manila is estimated at 170,000 gallons a day, the greater amount of which comes from the public artesian wells of the city.

Altho from the studies made of typhoid fever in previous years and also from the characteristics of the present epidemic, no evidence whatsoever is on hand regarding the importance of water as a factor in the transmission of the infection within the City of Manila, the Committee performed an almost thoro investigation of the water supply in the City of Manila. The investigation was carried out, not only in the ultimate sources of the water, but also in private houses and public places of distribution, and especially in the passage of the water from the source to the consumers.

The results of the present investigation are summarized as follows: The water supply of the City of Manila in its source (city reservoirs, artesian wells, etc.) has been proved to be relatively safe from the sanitary point of view. Several samples taken directly from the reservoirs, city taps, and from artesian wells show a little more than 5 per cent to be unfit for drinking consumption (see Table XXV) out of 613 specimens submitted for examination. *Notwithstanding the small percentage of contaminated samples found, it must be considered that the lack of an adequate filtration plant and the deficient chlorination plant existing at the present time can not assure a permanent and proper treatment of water.*

TABLE XXV.—*Examination of Water Specimens directly taken from the source (January–June, 1922)*

MANILA CITY WATER-SUPPLY

Specimens taken from—	Number of specimens.	Number of colonies per c. c.			
		Less than 100.	100 to 1,000.	1,000 to 10,000.	10,000 to 100,000.
New Reservoir	181	83	72	18	8
City Tap	180	90	61	26	3
Old Reservoir (El Deposito)	39	16	21	1	1
Tunnel	11	5	4	1	1
San Juan Tap	181	135	41	3	2
Santolan	4	3	1	.....	.....
Artesian Well	17	1	8	5	3
Total	613	333	208	54	18

TABLE XXV.—*Examination of Water Specimens, etc.—Continued*

MANILA CITY WATER-SUPPLY—Continued

Specimens taken from—	Presumptive test (Positive).	Attempt to isolate B. Coll (Positive).	Total unfit. ¹	Per cent of unfit.
New Reservoir	28	12	12	6.63
City Tap	22	11	11	6.11
Old Reservoir (El Deposito)	6	2	2	5.13
Tunnel	3	3	3	27.27
San Juan Tap	14	3	3	1.66
Santolan .....	.....	.....	0	0
Artesian Well	0	0	0	0
Total	73	31	31	5.06

¹ Considered unfit those having more than 100,000 colonies or those positive for B. Coll.

For the fair interpretation of the facts discussed in this paper and expressed in the tables regarding the water investigation, the following points should be taken into consideration:

1. The percentage of samples found unfit during the last six years runs from 11 to 16 or more per cent in public places.

2. The samples of drinking water secured directly from the source have always been proved to be safe for drinking purposes.

3. That during the dry season, there is a shortage of water in the City of Manila. To compensate for this dearth, however, the city makes use of the reservoir of the old water system (Santolan). During the first six months of this year, the old water system has, as usual, been resorted to in supplying the city with water, from March 1 to April 28.

The number and location of public artesian wells in the City of Manila are marked in the attached blueprint which also shows the pipe distribution thruout the city of the present water system.

To see the relation of the incidence of typhoid fever in the City of Manila with the percentage of samples of water directly taken from the sources (reservoirs, tunnels, etc.) which were found unfit for drinking purposes, Tables XXVI and XXVII have been prepared.

Table XXVI shows the average number of colonies and the percentage of unfit samples taken from these sources by month and the ratio of the incidence to 100,000 population. Table XXVII shows the average number of colonies and the percentage of unfit samples of water, disregarding the source in relation to the incidence of typhoid fever for each 1,000 population. The attention of the reader is called to the following facts observed in these tables:

1. The high percentage of unfit samples of water secured from the tunnel (the tunnel is located between the Santolan pumping station and the old reservoir). Out of 10 samples taken during the month of March from this source, three or 27.27 per cent of the samples have been found unfit for drinking purposes.

2. In contradistinction to this high percentage of water taken from the tunnel, we have a lower one resulting from the examination of water taken from the old reservoir. It must be taken into consideration that the water comes from the tunnel and reaches the old reservoir without suffering any previous treatment.

3. A close observation of Table XXVII shows that there is no relation between the annual incidence of typhoid fever and the percentage of unfit samples from the examination of the water directly taken from the sources.

TABLE XXVI.—*Examination of Water by Month (Samples directly taken from the City Water-Supply, January to June, 1922)*

METROPOLITAN WATER DISTRICT

Samples from—	January.			February.		
	Average No. of colonies of all examinations.	Per cent of unfit samples.	Incidence of typhoid per 100,000 population.	Average No. of colonies of all examinations.	Per cent of unfit samples.	Incidence of typhoid per 100,000 population.
New Reservoir	279	0	278.845	1,150	0	569.867
City Tap	316	0		412	0	
Tunnel						
"El Deposito"						
San Juan Tap	52	0		682	0	
Santolan						
Total	216	0		748	0	

TABLE XXVI.—*Examination of Water by Month, etc.—Continued*

METROPOLITAN WATER DISTRICT—Continued

Samples from—	March.			April.		
	Average No. of colonies of all examinations.	Per cent of unfit samples.	Incidence of typhoid per 100,000 population.	Average No. of colonies of all examinations.	Per cent of unfit samples.	Incidence of typhoid per 100,000 population.
New Reservoir	993	0	880.372	1,380	3.33	734.252
City Tap	63	0		432	10.00	
Tunnel	3,972	27.27		595	3.33	
"El Deposito"	111	9.09		194	3.33	
San Juan Tap	33	0		87	0	
Santolan						
Total	1,034	3.48		537	4.92	

Samples from—	May.			June.		
	Average No. of colonies of all examinations.	Per cent of unfit samples.	Incidence of typhoid per 100,000 population.	Average No. of colonies of all examinations.	Per cent of unfit samples.	Incidence of typhoid per 100,000 population.
New Reservoir	1,316	12.90	448.101	2,220	23.33	442.530
City Tap	1,244	12.90		1,913	13.33	
Tunnel						
"El Deposito"						
San Juan Tap	870	6.45		171	10.00	
Santolan						
Total	1,143	10.75		1,435	15.56	

TABLE XXVII.—*Examination of water by months, in relation to annual incidence*

[Samples direct from the Metropolitan Water District]

Months.	Average No. of colonies of all samples examined.	Per cent of unfit samples.	Daily average of cases (City cases).	Annual incidence per 100,000 population (City cases).
January	216	0	2.29	278.845
February	748	0	4.68	569.887
March	1,034	3.48	7.23	880.372
April	537	4.92	6.08	734.252
May	1,143	10.75	3.68	448.101
June	1,435	15.56	3.47	442.530

Judging from the characteristics of the present epidemic together with what has resulted from our investigation, that is, the failure to detect the close relation between the incidence of typhoid fever and the results of the water examination, we may say that the prevalence or increase of the number of typhoid cases at present in the City of Manila has but slightly been influenced by the water supply. The fact that water coming from the tunnel (the source from which water samples have shown

a high percentage of pollution) has been used since March 19, at the time when there was being registered the highest incidence of cases, shows that no actual chronological relation exists between the water and the typhoid incidence.

Examination of water secured from public places. Careless handling.—The examination of drinking-water samples secured from public places (restaurants, hotels, ice-cream parlors, “tiendas de sari-sari,” panciterias, carinderias, etc.) shows a more remarkable increase in the percentage of unfit samples in comparison with the samples obtained for the examination of water secured from the very sources. This result is believed to be due to the careless handling of the water. The following, Table XXVIII, has been worked out to show to what extent the handling of the different kinds of water served in public places of the city influences the contamination of drinking water. City water, artesian water, and distilled water are indiscriminately used in public places. The examinations of city water, whether boiled, not boiled or filtered, are shown in this table. The same is shown in regard to the artesian water. A very interesting fact may be seen from the examination of the results obtained. Out of the total number of samples of water served in public places, we see a high percentage of unfit samples in boiled water, less among not boiled water samples, and a much lower percentage among filtered water specimens. The same proportion is observed with regard to the artesian water, altho in a higher percentage. This fact seems to be unexplainable phenomenon for anybody who does not know the local conditions, habits, and personal ways of handling the water in the City of Manila; but for persons having experience and knowledge of all these particulars, the fact may be probably explained by the following points: (a) That boiled water is usually carelessly handled and, therefore, has more opportunities of contamination thru the hands of the persons in charge than not boiled water; (b) boiled water is usually filtered after cooled, thru a piece of cloth which, in the majority of cases, is of doubtful cleanliness; (c) the smaller percentage of unfit samples found in the city water, in comparison with that of artesian water, is explained by the chlorination treatment and also by the lesser opportunities for the former to be contaminated than the latter. City water is usually taken from the house-taps and directly poured into the drinking water receptacles, while the artesian water goes from the well to the tin receptacles of the water-carriers, and then to the drinking receptacles in the private houses. The

handling of water is believed to be one of the important factors responsible for the present typhoid infection in the City of Manila.

TABLE XXVIII.—*Examination of water from public places*¹ (from January to June, 1922, inclusive)

Kind of water.	Total of specimens examined.	Bacterial count.			B. coli.		Total unfit.	Percentage of unfit.
		Less than 1,000,000.	100,000 to 1,000,000.	Over 1,000,000.	Positive.	Negative.		
City water:								
Boiled.....	2,396	1,894	319	1	208	2,189	499	20.83
Not boiled.....	117	101	10	0	6	111	16	13.67
Filtered.....	14	12	0	0	1	13	1	7.14
Artesian water:								
Boiled.....	354	341	51	1	62	292	104	29.38
Not boiled.....	2,208	1,878	189	0	272	1,936	437	19.79
Distilled water:								
Distilled.....	213	189	12	0	44	169	54	25.35
Total.....	5,302	4,415	581	2	593	4,710	1,111	20.95

¹ Restaurants, hotels, tiendas de sari-sari, ice-cream parlors, etc.

To confirm and verify the part played by handling, in the contamination of water, special investigation has been made in one of the city districts toward this end. All the experiments were performed by Dr. P. Gabriel, a member of the Committee. The first experiment was made to show the presence of *B. Coli* in the hands of the water-carriers. Water-carriers have been made to wash their hands on sample of sterile water and the same submitted for examination to the Bureau of Science with a control sample of the same water. Not one of the samples among the former has been found negative for *B. Coli* while the control were negative. The second experiment was made to find out the difference in the number of colonies and the presence of *B. Coli* from two groups of samples of water taken at the same time and under similar conditions. The first group of samples was taken directly from the sources of water and the second was of sample from the tin receptacles of water-carriers. The results are shown in Table XXIX. On 17 such experiments, only on three occasions (samples 3, 12, and 17) were samples of water taken from water-carriers proved to contain lesser number of colonies than the sample of the same kind of water obtained directly from the faucet or source. These experiments have been carried out with the water of artesian wells. Similar experiments were made in November, 1921, in both city and artesian water, the results of which were as follows: Out of 10 *artesian* water samples secured from the receptacles of water-carriers, one was found positive for *B. Coli*. Out of 10

samples of *city water* secured from water-carriers' receptacles, not one was found positive for *B. Coli*. Out of 10 samples of *artesian water* secured from the receptacles in private houses, five were found positive for *B. Coli* while only one was found positive out of 10 samples of *city water* secured under the same circumstances.

In brief, we may say that our water-supply shows slight evidence of contamination in its source. This, however, does not explain, we believe, the high incidence in the present epidemic. Notwithstanding this belief, *the need of a more adequate water-supply, commensurate with the continuous growth in population and commercial importance of a city such as Manila, should not be overlooked.* Another most urgent recommendation is to *equip the present water supply with an automatic chlorination plant; and should it be economically possible, the construction of an appropriate filtration plant is recommended as far more beneficial to the community.*

TABLE XXIX.—*Examination of water from artesian wells*

Specimen No.	Number of colonies per cubic centimeter.	Presumptive test.	Attempt to isolate <i>B. Coli</i> .	Remarks.
1.....	340	Negative...	Negative...	Directly from pipe.
(a).....	22,890	do.....	do.....	Water carrier.
(b).....	45,890	do.....	do.....	Do.
2.....	110	do.....	do.....	Directly from pipe.
(a).....	34,350	do.....	do.....	Water carrier.
(b).....	28,620	do.....	do.....	Do.
(c).....	57,240	do.....	do.....	Do.
(d).....	8,130	do.....	do.....	Do.
3.....	170	do.....	do.....	Directly from pipe.
(a).....	60	do.....	do.....	Water carrier.
4.....	6,360	do.....	do.....	Directly from pipe.
(a).....	80,130	do.....	do.....	Demijohn.
(b).....	85,860	do.....	do.....	Water carrier.
(c).....	11,440	do.....	do.....	Do.
5.....	90	do.....	do.....	Directly from pipe.
(a).....	34,340	do.....	do.....	Water carrier.
(b).....	170	do.....	do.....	Do.
(c).....	2,540	do.....	do.....	Do.
(d).....	11,410	do.....	do.....	Do.
(e).....	100	do.....	do.....	Do.
6.....	270	do.....	do.....	Directly from pipe.
(a).....	61,000	do.....	do.....	Water carrier.
(b).....	7,000	do.....	do.....	Do.
(c).....	(*)	Positive	Positive	Do.
(d).....	60,000	Negative	Negative	Do.
(e).....	90,000	Positive	Positive	Do.
7.....	340	Negative	Negative	Directly from pipe.
(a).....	50,000	do.....	do.....	Water carrier.
8.....	570	do.....	do.....	Directly from pipe.
(a).....	1,200	do.....	do.....	Water carrier.
(b).....	3,700	do.....	do.....	Do.
(c).....	4,000	Positive	do.....	Do.
(d).....	1,600	Negative	do.....	Do.
9.....	900	do.....	do.....	Directly from pipe.
(a).....	5,000	do.....	do.....	Water carrier.
10.....	6,360	do.....	do.....	Directly from pipe.
(a).....	22,890	do.....	do.....	Water carrier.
(b).....	17,170	do.....	do.....	Do.
(c).....	17,170	do.....	do.....	Do.
(d).....	11,440	do.....	do.....	Do.
11.....	1,040	do.....	do.....	Directly from pipe.
(a).....	10,070	Positive	do.....	Water carrier.
(b).....	5,080	Negative	do.....	Do.
(c).....	40,060	do.....	do.....	Do.

TABLE XXIX.—*Examination of water from artesian wells—Continued*

Specimen No.	Number of colonies per cubic centimeter.	Presumptive test.	Attempt to isolate B. Coli.	Remarks.
12.	1,340	Negative	Negative	Directly from pipe.
(a)	160	do	do	Water carrier.
(b)	190	do	do	Do.
13.	180	do	do	Directly from pipe.
(a)	11,490	do	do	Water carrier.
(b)	2,170	do	do	Do.
(c)	6,360	do	do	Do.
(d)	103,030	do	do	Do.
(e)	(*)	Positive	do	Do.
(f)	34,340	do	Positive	Do.
(g)	22,890	do	Negative	Do.
(h)	22,890	Negative	do	Do.
(i)	45,890	do	do	Do.
14.	7,630	do	do	Directly from faucet.
(a)	40,000	Positive	do	Water carrier.
(b)	(*)	do	do	Do.
15.	11,440	Negative	do	Directly from opipe.
16.	17,170	do	do	Directly from faucet.
(a)	114,480	Positive	do	Water carrier.
(b)	45,890	Negative	do	Do.
(c)	(*)	Positive	do	Do.
(d)	97,300	Negative	do	Do.
17.	22,890	do	do	Directly from faucet.
(a)	(*)	Positive	do	Water carrier.
(b)	131,650	Negative	do	Do.
(c)	220	do	do	Do.
(d)	6,360	do	do	Do.

* Innumerable.

(b) ICE

Ice, in itself, may be considered as a negligible factor in the causation of typhoid fever in the City of Manila. The ice plants operating in the city, their ways of preparation, water employed, etc. have been investigated by the members of the Committee. Samples of ice have been sent to the laboratory with negative results. *The danger in the use of ice as a cause of the typhoid infection lies in the handling and the methods of serving the same to the public.* Samples of cracked ice and pieces of ice sold by retail dealer in the city have been submitted to the laboratory for examination. The results as shown in the following table

TABLE XXX.—*Ice from public places*

Total specimens examined.	Bacterial count.			B. Coli.		Total unfit.	Percentage of unfit.
	Less than 1,000,000.	100,000 to 1,000,000.	Over 1,000,000.	Positive.	Negative.		
24.....	21	3	0	3	21	6	25.00

give 25 per cent of samples unfit for human consumption on account of the excessive number of the bacterial count and the presence of *B. Coli*. In connection with the examination of ice, samples of *halo-halo*, *mongo con hielo*, etc., which are served

with scraped ice were also sent to the laboratory for examination. There were submitted for biological examination 965 samples. Out of this total, 396 were found unfit for human consumption, especially on account of the presence of *B. Coli* giving 41.03 per cent of samples contaminated. No attempt however, has been made to show the actual presence of typhoid and paratyphoid bacilli in these samples. The presence of *B. Coli* has been taken in the course of this investigation as a presumptive sign of possible contamination with intestinal pathogenic germs.

(c) MILK

As in other investigations performed in previous years, milk has been the subject of a special investigation during the present epidemic. Very few specimens have been submitted for examination on account of the difficulties met with in securing specimens and submitting them to the laboratories on time to obtain fairly satisfactory and reliable results. The outcome of this investigation is shown in a comprehensive table giving, in general, all the results obtained from the investigation of samples of milk, soft-drinks, some kinds of food, etc. As may be seen in this table, 65.62 per cent of carabao fresh-milk samples resulted unfit and one out of five samples of boiled and pasteurized milk was found to contain more than 1,000,000 colonies.

TABLE XXXI.—*Examination of samples of milk, soft drinks, ice-drops, etc. (From January to June, 1922, inclusive)*

Kind of sample.	Total specimens examined.	Bacterial count.			B. Coli.		Total unfit.	Percentage of unfit.
		Less than 100,000.	100,000 to 1,000,000.	More than 100,000.	Positive.	Negative.		
Carabao fresh milk.....	32	0	2	15	11	21	21	65.62
Boiled and pasteurized milk.....	5	1	0	1	0	5	1	20.00
Condensed milk.....	2	0	0	0	0	2	0	0
Aerated water and others.....	99	76	0	3	3	68	3	3.03
Ice-cream and sherbets.....	354	126	76	56	225	123	236	66.67
Ice-drops.....	137	18	26	30	55	79	74	54.01
Halo-halo, mongo con hielo.....	965	46	17	2	391	574	396	41.03
Vegetables ¹	4	0	0	0	2	2	2	50.00
Meat.....	3	0	0	0	2	1	2	66.66
Sardines and salmon ²	67	0	0	0	66	1	66	98.50
Vinegar, toyo, tomato, catsup, salsa..	16	0	0	0	2	14	2	12.50
Total.....	1,684	267	121	107	757	890	803	47.68

¹ Fresh, raw samples.

² Samples from cans already open.

In the samples of condensed milk and other canned milk, no contamination was detected. In spite of the above-stated results obtained from examinations of milk, the Committee, however,

does not believe that milk has played an important rôle in the present typhoid epidemic, if we consider that:

1. Only about 12 per cent of the cases are known to have used either raw, boiled, or pasteurized milk as shown in our Table XXIII.

2. About 90 per cent of the estimated proportion of persons using milk use it either in boiled or pasteurized form.

3. The majority of the cases of typhoid fever reported during this epidemic were among laborers, students, food handlers. This portion of the population does not usually use milk except the condensed or other canned milk for reasons of economy and easy preservation.

4. The amount of fresh carabao milk distributed in the city for human consumption is more or less 1,000 gallons a day, and a great portion of this quantity is boiled in private houses before use.

5. The careless handling of all kinds of milk is the important factor in the contamination resulting in the high percentage of unfit samples detected in the biological examinations.

In spite of the considerations stated above, the milk, as a potential source of infection, must never be ignored by the health officers in connection with any milk-borne infection. In the first place, there is a relatively large bulk of "caraballa" (female carabao) milk brought and sold in the City of Manila, on which no systematized supervision can be exercised for the reason that these small dairies are located out of the city and they are not licensed nor permanently dealing with milk. They are persons who, taking advantage of the nursing conditions of their "caraballas," had become accidentally and temporarily milk-dealers. In the second place, altho the large majority of the "caraballa" milk that is sold in Manila is boiled, its safety can not be relied on by reason of eventual contamination. A special investigation performed by Dr. Gabriel, independently from the studies of the Committee, shows that out of 29 milk-peddlers from which two or more samples of milk were secured on different dates, only one was proven to be uncontaminated milk (96.55 per cent of the peddlers with contaminated milk) and out of 77 peddlers of milk from each of whom one single sample could be secured, only 15 showed no contamination, or 80.52 per cent peddlers delivering contaminated milk. (See attached Table XXXIa.) In the impracticability of keeping an effective control on these accidental temporary milk-dealers, *it is believed advisable to prohibit the introduction and sale in the City of Manila of milk from dairies other than those licensed by the Service.*

TABLE XXXIa.—(Results of the special investigation on caraballa milk by Dr. P. Gabriel)

Reg. No.—	Names of peddlers.	Residences.	Results of milk examination.		
			First.	Second.	Third.
1.	S. de la C.	366 Solis	(^a)		
2.	L. E.	Balintawak, Rizal.	(^a)	(^b)	^b 5,724,000
3.	A. D.	do.	^d 16,027,000	* 4,579,000	^f 3,434,000
4.	A. B.	do.	(^b)		
5.	S. A.	do.	* 17,172,000	* 5,586,000	^f 5,151,000
6.	P. de la C.	Masambong, Rizal.	* 5,724,000	^f 9,158,000	
7.	D. B.	do.	(^b)	(^b)	* 9,730,000
8.	J. B.	Balintawak, Rizal.	* 9,730,000	(^b)	
9.	C. B.	do.	* 10,303,000		
10.	J. S.	do.	* 6,868,000		
11.	E. P.	Masambong, Rizal.	(^c)		
12.	L. M.	do.	* 4,579,000	* 11,448,000	* 10,875,000
13.	G. T.	do.	* 4,579,000	* 8,586,000	
14.	D. N.	do.	* 6,868,000	* 1,717,000	
15.	M. D.	744 L. Rivera	* 9,158,000		
16.	P. R.	2241 Juan Luna	* 17,172,000	* 6,868,000	* 113,000
17.	M. D.	2601 Lico.	* 8,013,000		
18.	T. F.	1912 Juan Luna	* 6,868,000	* 4,006,000	
19.	V. de la C.	2601 Int. Lico.	* 5,151,000		
20.	V. T.	Balintawak, Rizal.	* 17,172,000		
21.	M. C.	Caloocan, Rizal.	* 6,296,000	* 4,579,000	* 5,151,000
22.	L. N.	1912 Int., J. Luna.	* 8,586,000	* 3,434,000	
23.	A. P.	Balintawak, Rizal.	* 5,151,000		
24.	J. S.	Caloocan, Rizal.	* 9,730,000		
25.	F. V.	Balintawak, Rizal.	^f 14,882,000	* 8,586,000	^d 11,448,000
26.	J. G.	do.	* 11,448,000		
27.	I. del R.	San Francisco del Monte	^f 14,882,000	* 9,780,000	
28.	P. D.	Baisa, Caloocan, Rizal.	* 9,730,000		
29.	J. R.	Balintawak, Rizal.	^f 11,448,000	* 9,780,000	(^b)
30.	F. G.	do.	* 8,013,000		
31.	A. G.	do.	* 9,730,000	^f 11,448,000	(^b)
32.	E. P.	do.	^f 4,579,000		
33.	A. de la C.	Masambong, Rizal.	* 2,288,000		
34.	G. N.	do.	* 2,862,000		
35.	F. A.	Caingin, Rizal.	* 7,441,000	^f 17,172,000	^f 8,586,000
36.	G. B.	2638 Lico.	* 8,586,000		
37.	P. de los S.	San Francisco.	^f 18,737,000		
38.	T. C.	? O'Donnell.	* 2,289,000		
39.	C. P.	Balintawak, Rizal.	^f 9,730,000	^f 3,434,000	* 17,472,000
40.	C. R.	do.	* 5,724,000	* 5,151,000	* 10,303,000
41.	C. L.	Matang-tubig, Rizal.	* 8,441,000		
42.	A. M.	do.	* 10,303,000		
43.	T. N.	361 Solis	* 14,310,000		
44.	M. L.	Balintawak, Rizal.	(^b)	(^b)	* 28,620,000
45.	S. de la C.	369 Int., Solis.	* 8,013,000		
46.	C. F.	2604 Lico.	(^b)		
47.	V. A.	2604 Lico.	* 9,158,000		
48.	M. M.	77 Blumentrit.	^d 11,448,000		
49.	S. C.	Masambong, Rizal.	* 11,448,000		
50.	J. de la C.	2366 Int., J. Luna.	^f 74,410	* 6,295,000	
51.	G. B.	Potrero, Rizal.	^f 8,586,000	* 6,296,000	^f 9,730,000
52.	J. L.	369 Int., Solis.	^f 5,724,000	^d 10,303,000	
53.	F. P.	Balintawak, Rizal.	^f 4,579,000		
54.	B. B.	Malabon, Rizal.	^f 8,013,000	* 5,724,000	* 9,730,000
55.	M. R.	do.	* 3,434,000	* 9,730,000	
56.	J. C.	Balintawak, Rizal.	^f 5,724,000		
57.	P. D.	do.	* 4,006,000		
58.	A. C.	do.	^f 4,579,000		
59.	F. I.	Masambong, Rizal.	* 5,151,000		
60.	J. G.	do.	* 6,296,000		
61.	J. A.	Malabon, Rizal.	* 6,868,000	^f 8,586,000	
62.	B. G.	Balintawak, Rizal.	^d 8,586,000	* 5,724,000	
63.	V. R.	Potrero, Rizal.	^d 4,578,000	* 9,730,000	
64.	A. B.	? Antipolo.	* 14,882,000		
65.	L. del M.	Balintawak, Rizal.	* 7,441,000		
66.	R. C.	do.	* 8,586,000		
67.	M. de la C.	do.	* 8,738,000		
68.	A. G.	do.	^f 7,441,000		
69.	J. B.	do.	* 9,158,000		
70.	T. R.	Masambong, Rizal.	* 8,586,000		
71.	P. P.	do.	* 9,730,000		
72.	F. I.	do.	* 9,730,000		

NOTE: The results of the examination give the bacterial count, the presumptive test, and the isolation of *B. Coli*.

* Innumerable negative-negative.

^b Innumerable positive-positive.

^c Innumerable positive-negative.

* Negative-negative.

* Positive-positive.

^f Positive-negative.

(d) ICE-DROPS

During the last quarter of 1921, a Japanese concern applied for a license to manufacture a sort of sherbets under the name of "ice drop" (ice drop is frozen sugar water mixed with different kinds of flavor and sold to the public in form of rod wrapped in parafine-coated paper). The application has been approved after due inspection of the plant and supervision of the method and process employed in the preparation. The product has been accepted by the public as a refreshment, and during the Carnival Week a booth was opened within the Carnival City for supplying ice drops to the people coming into the City. Just to make an estimate of the amount of ice drops sold during the Carnival Week, it is believed worth while to mention the net profit amounting to ₱12,000 obtained by the Japanese concern within the short period of nine days, after taking into consideration that ice drop is sold at ₱.05 a piece. The booth in the Carnival as well as the processes of production and preparation of ice drops in the main office has not been duly supervised nor was any inspection or examination of the products made during this period. The fact that the incidence of typhoid fever has jumped up to its maximum, after the Carnival Week and within the assumed incubation period of typhoid fever, considered in relation to the results of the biological examinations performed in ice drops' samples, resulting in 54.01 per cent of samples being contaminated, induces the Committee to believe that the large amount of ice drops used and consumed in the City of Manila played an important rôle in the present epidemic as a determining factor in its propagation. Direct evidence, however, of this relation could not be obtained by the Committee since the investigation was started several weeks after the Carnival season. From our special investigations performed in 587 cases of typhoid fever (most of these cases were reported one month after the Carnival Week), a very small proportion, however, of the cases are recorded to have eaten ice drop within thirty days before the onset of the disease (6.64).

As a result of the findings obtained by the Committee, recommendations have been submitted to the Director to supervise and regulate strictly the manufacture and preparation of ice drops by requiring, besides, the biological examination of the product at regular intervals. Regulations were approved and enforced at once with the result that many, if not all, of the small manufacturers of ice drops which could not comply with

the regulations have given up their business with the consequent fall of incidence of typhoid fever cases.

(e) SHERBETS AND ICE-CREAM

The problem of sherbets and ice-cream as potential transmitters of typhoid infection is a complex one since the control and supervision over them is exercised under a complexity of aspects and conditions. As an industry, there are in the city very few (only two) big concerns over which an effective control is performed by the Service. Where this control is deficient, and to a certain extent ineffective, is over the great many native and Japanese refreshment stores and especially over the hundreds of native peddlers, as the findings of the Committee show. The high percentage of unfit samples of ice-cream and sherbets found thru biological examination shows that this factor (ice-cream) is one that must not be neglected in connection with intestinal infections. While there was found a relative safety in the preparation of these products, indistinctly in the factories, refreshment stores, and other places approved by the Service, there exists, however, the danger of contamination from the careless way of handling them which explains the high percentage of samples found unfit by the Committee. More strict regulations, practical instructions on the proper manner of preparation, and a most effective control and supervision in the preparation and handling of sherbets and ice-cream should be exercised to eliminate and reduce to a minimum the possibility of danger by contamination.

The regulations and recommendations of the Committee concerning this subject may be seen in another part of this report.

(f) OYSTERS

Oysters and other shellfishes were generally considered an unimportant factor as a source of typhoid infection in the Philippines. In previous investigations, very little attention, if any, was paid to this factor as related to the causation of typhoid fever. The sale of oysters was forbidden for about a year during 1920-1921. This measure, so far has not been followed by any favorable decrease in the typhoid incidence. The findings of the Committee, with the exception perhaps of the 25.71 per cent of samples of oysters found contaminated with *B. Coli* afford no other evidences, direct or indirect, to lead us to any definite con-

clusion. The matter is recommended, however, to be independently investigated and be given more serious consideration. The Committee recommends to this effect that: (a) oysters and other shellfishes be studied, and their relation to intestinal infections be investigated; (b) in making this study, the method prescribed by the "Committee on Standard Methods for the Bacteriological Examination of shellfish," published in the A. J. P. H., Vol. XII, July Number, 1922, be followed as far as possible; (c) the oyster beds should be investigated and inspected; (d) regulations for the license and control of oyster beds should be prepared in accordance with the findings of the Committee; and (e) that a committee be appointed to this effect.

The findings of the present typhoid investigating Committee in relation to the oyster investigation may be summarized as follows:

1. Oyster beds are in a bad sanitary condition and have no protection whatsoever from contamination.

2. No supervision, on the part of the Service, is exercised over oyster bed or the sources of other shellfish.

3. The proportion of B. Coli infection in samples of oysters is more or less the same in those secured direct from oyster beds as in those secured from public markets.

4. Samples secured from Manila markets were found free from infection.

5. The incidence of typhoid infection in the places of oyster beds is not such as to point out any definite relation of oysters to this infection (typhoid). At the request of the writer, a house-to-house canvass for detection of typhoid cases for a certain period of time was especially done in Malabon, Rizal, by a district nurse. Only one case of typhoid fever, confirmed by Widal test, was found.

6. The oyster consumed in Manila usually come from Parañaque, Malabon, Navotas (Rizal), and Obando (Bulacan). With the exception of samples from the last place, the rest are apparently free from contamination.

7. Out of 587 cases with special history taken by investigators of the Office of Epidemiology, 13.97 per cent have given history of having eaten oysters and other shellfish.

Altho the findings, as enumerated above, are such that from them no definite conclusion can be made, the Committee feels safe to say that this factor can not be neglected as a potential source of infection of typhoid fever and that a careful study must be made before a definite conclusion may be drawn.

TABLE XXXII.—*Oyster examination*

Oysters from—	Number of specimens.	B. Coli.		B. Typhosus.		Total contamination specimens.	Per cent of contamination specimens.
		Pos.	Neg.	Pos.	Neg.		
Oyster beds:							
Parañaque, Rizal.....	5	0	5	0	5	0	0
Navotas, Rizal.....	8	0	8	0	8	0	0
Malabon, Rizal.....	2	0	2	0	2	0	0
Bacood, Cavite.....	1	0	1	0	1	0	0
Hagonoy, Bulacan.....	2	2	0	0	2	0	100
Obando, Bulacan.....	2	2	0	0	2	2	100
Paombong, Bulacan.....	1	1	0	0	1	1	100
Malolos, Bulacan.....	1	1	0	0	1	1	100
Public markets:							
Manila.....	10	0	10	0	10	0	0
Passay ¹	3	3	0	0	3	3	3
Total.....	35	9	26	0	35	9	25.71

¹ Oysters from Parañaque.

(g) AERATED WATER

The investigation did not show any direct relation of aerated water with the infection. Table XXXI only shows 3.03 per cent of samples contaminated with B. Coli. Altho negatives were the results, the rôle of bottled aerated water as a potential factor of transmission of any intestinal infection has been realized, after the inspection of the factories made by the Committee. In general, these factories do not follow the regulations of the P. H. S. in the preparation of their products. The places are more or less insanitary and the personnel, material, and manner of preparation are not duly inspected or supervised. Recommendations to remove these conditions were made. Opportunity has been had by the writer to verify whether the recommendations have been carried out or not after about three months. However, it is regretful to say that more or less the factories remain in the same condition as when reported by the Committee.

(h) "HALO-HALO," "MONGO CON HIELO"

The high percentage of contamination (41.03) detected by the Committee in this kind of food-stuffs affords a strong reason to believe in the dangerous rôle that "halo-halo," "mongo con hielo," "maiz con hielo" (mongo, maiz, milk, and scraped ice mixture) may play in any intestinal infection. The Committee has no clear evidence of any direct relation of cases with any of these foodstuffs. In view of the finding above, however, these factors as a potential source of infection have been prohibited on recommendation of the Committee, and many Japanese refreshment stores have consequently been closed.

(i) FLIES AND GARBAGE

These two subjects are discussed together since they have a very intimate bearing, considered from the view point of typhoid fever transmission. The present epidemic has occurred within the season when many low and vacant lots of lands are being filled with garbage. Improperly treated and without a close supervision of the workers, the garbage and the city refuse as a material for filling in low lands has always been the principal breeding-place of the large number of flies in the city, besides the numerous stables scattered all over the city in unsanitary conditions which are other agencies favoring the multiplication of flies.

The survey made by the writer, to find out the extension of fecal contamination by flies and incidentally to detect their relation with the transmission of diseases, gives the following summary from "Fly Survey in the City of Manila," Philippine Health Service Monthly Bulletin, Vol. 1, No. 5:

1. Flies in every house taken as a group show a 94.48 per cent fecal cantamination.

2. Individual flies show contamination in 72.58 per cent of them.

3. Flies in places where feces are disposed of by the pail system are all contaminated.

4. Flies in houses using public water-closets are less contaminated.

These findings show the danger of the existence of flies in regard to any of the intestinal epidemics.

There being no doubt as to the great danger of flies as a disease-carrier, the problem of fly extermination and that of minimizing to a great extent their breeding places should be seriously taken into consideration in connection with the sanitation of any locality.

The repetition of cases in the same neighborhood, without any relationship whatsoever between the cases and without any apparent explanation of the infection, seems to indicate the existence of an indirect transmission of the infection from person to person in these cases. The missing link in the chain of infection in these instances seems to be explained by the acceptance of the theory of the flies being the transmitting agents of the infection. In our table of sources of infection (Table XXIV), there appear (19) cases for the infection of which no other explanation can be reasonably accepted except the admis-

sion of the possible intervention of several factors, among others, the flies.

In this connection, it is believed necessary *to restrict the use of city refuse as a filling material for low lands*. There is no doubt that the permanent improvement attained by this procedure is invaluable. On the other hand, however, the actual nuisance caused by this material not only by the unsightly appearance and bad odors emanating from such spots but especially as breeding places for flies distributed in the city, is a matter that must be kept in mind. The Service does not grant permission to use this material for filling the low lands unless previous treatment of the refuse and certain other conditions are complied with. In the majority of the cases, these requisites are disregarded, and in some of them they are complied with in such an unsatisfactory manner that nuisance results.

In view of this fact, the Committee recommends either to stop the granting of permission for filling in low lands with garbage and other city refuse or to restrict it by (a) requesting *the strict compliance of the conditions required by the Service*, (b) *limiting the granting of such permission only during the dry season*, and (c) *refusing to issue any such permission for filling in low lands which are not at least 500 meters distant from any dwelling house*.

Stables have also been found good breeding places for flies. The Committee realized that much of the insanitary condition found in these places is but the result of lack of drainage, not only in the building but especially of the street. Recommendations to minimize this nuisance have been made by the Committee in the sense that no license for stables be recommended for approval unless the place is provided with inside and outside or street drainage.

(j) SEWAGE AND WASTE DISPOSAL

The Committee has not found any direct relation of this factor with the incidence of typhoid-fever during the present epidemic. The investigation, however, has brought to light several facts of relative importance as regards this topic, to wit: (a) there are many more buildings that can be connected to the sanitary sewer as provided for by section 825, R. O., City of Manila, than those that are at the present time connected (See Table XXXIII), (b) the insanitary conditions of public sheds, (c) the insanitary conditions found in W. C. of public places visited (markets, theaters, factories, etc.).

TABLE XXXIII.—*Sewage disposal in the City of Manila (1922)*

Districts.	Total number of premises that can be connected to Sanitary Sewer as per sec. 825, R. O.	Number of premises with Sanitary Sewer, December, 1921.	Number of premises with Water Service.	Number of premises using Sanitary Pails.	Number of pails in public midden sheds.	Number of pails in Government buildings.
Quiapo.....	462	437	658	89		6
San Miguel.....	318	202	342	53	8	
Sampaloc.....	1,443	496	1,096	328	384	2
Paco.....	448	270	528	96	77	2
Pandacan.....	171		99	34	65	
Santa Ana.....	294		167	93	181	
Santa Cruz and San Lazaro.....	1,706	953	2,648	614	482	3
Tondo and North Tondo.....	1,614	435	1,480	368	956	18
San Nicolas.....	901	804	1,339	67	69	4
Intramuros.....	342	423	527	1		7
Ermita.....	606	728	1,042	24	21	29
Malate.....	820	437	886	368	267	5
Binondo.....	603	628	1,005	70	61	1
Port Area.....	13					
Total.....	9,741	5,813	11,807	2,214	2,521	77

(From the Office of the Sanitary Engineer, Philippine Health Service)

For the interpretation of the table above, it must be made clear that out of 9,741 premises which are not connected with the sewer, there are 396 with septic tanks, some using sanitary pails, and the majority using public midden sheds. Attached to this report is a blueprint map of the City of Manila showing the extension of the sewer pipe distribution, thanks to the kindness of the Sanitary Engineer.

Considering the findings of the Committee, the sewage disposal of the City of Manila does not afford any evidence of it being an important factor in the causation of typhoid fever. Keeping in mind, however, the result of the fly survey made last year by the writer, the methods employed by and the habits of water-carriers and food-handlers in playing their trade, the health officers must not overlook the danger that may follow from the lack of sewage disposal in a good number of houses and the minimum area of the city covered by the sanitary sewer.

By way of information, the following facts should be kept in mind in connection with the actual sanitary sewer system of Manila: (a) the sewage is pumped by means of several pumping stations distributed within the city towards the terminal pumping at Azcarraga Street (See Sewage Blueprint); (b) the sewage is pumped out into the sea (Manila Bay) at about one-half mile from the shore thru a big leakage-proof pipe; (c) the sewage is relatively well diluted before it is pumped out to the outlet pipe; (d) the waste contained in the sanitary pails from both private houses and public buildings not connected

with the sewer are emptied into the pumping station at Azcarraga; and (e) another treatment but dilution is applied to sewage before discharge into the sea.

(k) PERSONS AS DIRECT SOURCES OF INFECTION

The investigation carried out by the Committee along this line has met with not a few difficulties, since to follow up the opportunities of one individual, either as an actually recognized or missed case or as a carrier to infect another, represents a complex and coördinated work on the part of the Committee. Actual cases and carriers have been followed up, not only in houses but also in hospitals, private and public, and also in places of business. With this, the difficulties of securing specimens (blood, dejecta, etc.) and sending them to the Bureau of Science in a proper manner, amount, etc., to assure reliable examination returns for diagnostic purposes should be also considered.

1. "ACTUAL CASES"

In the course of this investigation, we found out that 14.11 per cent of the total number of cases, from January to June, inclusive, had contracted the disease from actual cases either by direct or indirect contact. The percentage of cases that have contracted the disease from actual cases, as found among 587 cases with special history of investigation, is a little more than the percentage above (15.50 per cent). These figures were obtained from the routine preliminary investigation and from the special one made by the Committee during the last three months. In both investigations, the existence of any relation (direct or indirect contact) existing between the primary and secondary ones is carefully verified before the latter is considered as a case infected from a primary one, be he a carrier or a case.

The investigation of the Committee concerning the actual cases has gone as far as to determine, not only this relation but also the effectiveness of isolation of cases in hospitals and in their homes, and to find out the proportion of those that became carriers. The results of this investigation are discussed in the course of this report.

2. CARRIERS

For the detection of typhoid bacilli carriers, the procedure employed before the work of the present Committee was to secure specimens of blood from individuals; and should they show a positive sero-reaction, they were considered presumptive carriers unless, later or otherwise, they would show a negative feces examination. This process was believed by the Committee to be a slow method. It was thought that fecal specimens secured and plunged into a sterile glycerine-salt solution in tubes, as

suggested by the Chief of the Biological Department of the Bureau of Science, and sent to the laboratory without delay, would give better results. The method, therefore, has been followed accordingly.

The results of this campaign are in the following tables (XXXIV and XXXV) which show the number of specimens submitted for examination and the number of persons actually carrying germs.

TABLE XXXIV.—*Examination for the detection of carriers (from January to June, 1922, inclusive)*

Samples taken from—	Specimen of feces.				
	Samples.	Positive for B. Typhosus.	Positive for Para A.	Positive for Para B.	Percentage of positives.
Direct contacts.....	2,276	9	16	6	1.36
Remote contacts.....	1,594	2	7		0.56
Food handlers.....	1,412	1	15	2	1.27
Water carriers.....	127		8	1	3.15
Patients who recovered and discharged from hospitals.....	1,027	0	23		2.23
Totals.....	6,436	12	64	9	1.32

Samples taken from—	Specimen of blood for serum reaction.				
	Samples.	Positive for typhoid.	Positive for Para A.	Positive for Para B.	Percentage of positives.
Direct contacts.....	814	63			7.74
Remote contacts.....	93	3			3.22
Food handlers.....	52				
Water carriers.....	34				
Patients who recovered and discharged from hospitals.....					
Total.....	993	66			6.64

NOTE: This table shows different figures of positives from the Table of Carriers, as this represents the number of specimens found positive while the latter gives the number of carriers.

TABLE XXXV.—*Campaign for the detection of carriers (from January to June, 1922, inclusive)*

[Table of Carriers]

Among—	Persons found carriers.							
	T. Bacilli detected by—		Para A. Bacilli detected by—		Para B. Bacilli detected by—		Total.	
	Sero-reaction.	Stool examination.	Sero-reaction.	Stool examination.	Sero-reaction.	Stool examination.	Sero-reaction.	Stool examination.
Direct contacts.....	54	13		9		4	54	26
Remote contacts.....	6	2		1			6	3
Food handlers.....	3	7		7		3	3	17
Water carriers.....	1			4			1	4
Dead bodies.....		1						1
Patients who recovered and were discharged from hospitals.....				13				13
Total.....	64	23	0	34	0	7	64	64

¹ We assumed that those found positive by serological reaction were presumptive carriers and the same measures as those for proved carriers were taken in these cases.

Thirteen (13) carriers of Para A were found out of 276 convalescent (4.71 per cent.).

For the proper interpretation of these tables, the following points must be considered:

1. *Direct contacts* mean the persons living the same household with the patient. *Remote contacts* are those living in the neighborhood of the case. *Food-handlers* and *water-carriers* are self-explanatory terms.

2. As a general rule, only one specimen was secured from contacts, direct or remote, from food-handlers and water-carriers. Some of them, however, had given more than one specimen.

3. Not less than six consecutive specimens of stools were secured from convalescents and patients discharged from hospitals as recovered.

4. The total number of convalescents and discharged patients from whom specimens were secured was 276.

The Committee does not assert that it has obtained results that may be even considered a fair representative of the facts. However, it is believed that with the method employed, we had improved the method of detecting carriers.

As far as it is known, none has been proved in the past to be positively a germ-carrier. The records of the past years give more or less the same results as the one given in the following table of results of the campaign for typhoid-carriers in 1921.

TABLE XXXVI.—*Blood and stool survey for typhoid-fever carriers (from annual reports, 1921)*

Health district.	Blood specimens.			Stool specimens		
	Number.	Positive.	Negative.	Number.	Positive.	Negative.
No. 1, Intramuros.....	691	3	682	16	0	16
No. 2, Meisic.....	9	0	9	0	0	0
No. 4, Sampaloc.....	733	3	730	38	0	38
No. 5, Tondo.....	37	0	37	0	0	0
No. 6, Paco.....	459	0	459	3	0	3
Total.....	1,929	12	1,917	57	0	57
Percentage.....		0.62	99.38			100

From 0.62 per cent found positive for sero-reaction and no one positive stool during 1921, we have had 6.64 per cent positives of blood specimens and 1.32 per cent stool specimens found positive for either typhoid or para-typhoid A and B bacilli, during the first month of 1922. It is not known whether this promising result, not only in detecting carriers but also in diagnosis, is a result of the abnormally high incidence of cases which naturally would have increased the number of carriers. However, we affirm that it has been a step forward, since there has

been an opportunity to show *T. Bacilli* in feces, an accomplishment which has not easily been demonstrated before, a result which is due to the improved methods introduced by the Bureau of Science.

The follow-up of convalescents showed that out of 276 convalescents from which stool specimens were secured, 13 were found to harbor para-typhoid A, or 4.71 per cent carriers.

The rôle played by carriers in the incidence of typhoid fever is well known. However, to what extent are they responsible in the present epidemic? In our Table of Sources of Infection (Table XXIV), less than two per cent of all the cases could have been traced to carriers (convalescent and chronic carriers). No infection could have been traced from healthy carriers, however.

Now, the facts gathered from the campaign for the detection of carriers show that for every one-hundred actual cases of typhoid fever, there are 4.71 convalescent carriers and that there are 1.18 per cent proved carriers among the direct contacts, or 0.20 per cent among remote contacts, 1.22 per cent among food-handlers, and 3.15 per cent among water-carriers. In brief, there is more than one carrier for every hundred persons from whom stool specimens were secured. The figures obtained in previous investigation (see "Del Rosario and Lopez Rizal's Contact Infection—The Main Factor in the Causation of Typhoid Fever in Manila") give more or less the same percentages of carriers among the different groups of the population, thus: contact-carriers 2.35 per cent; remote contacts and food-handlers 1.01 per cent. Taking into consideration that these persons were more or less in contact with actual cases, it is not strange to obtain a larger percentage of proved carriers among them.

Altho no direct investigation was made to verify the number of carriers in proportion to the general population, we estimate (keeping in mind as a basis the result of the present campaign and that of previous years, among remote contacts, food-handlers, water-carriers, and dead bodies) that not less than four to each thousand population are typhoid carriers, or about 1,200 typhoid carriers in the City of Manila.

One, therefore, of the heaviest tasks of the Service to solve the problem of typhoid fever, is to discover these carriers and have a reasonable control over them. The Service has just started this work and it is recommended that a more effective control be exercised over them in the future.

Carriers found are taken to San Lazaro Hospital and kept isolated under treatment until six consecutive examinations of stool specimens are proved negative. This is the measure taken as far as recommendations of the Committee are concerned. The quarantine of typhoid carriers was upheld by a decision of the Supreme Court of Illinois (see Public Health Reports Vol. 37, No. 21).

VI. INVESTIGATION AND STUDIES ON METHODS OF CONTROL

Considering the great importance of an effective control of the infection, the enforcement of preventive and suppressive measures, the Committee thought it worth while to study the different methods in actual practice for the eradication of the epidemic. There is, of course, no intention on the part of the Committee to gauge the efficiency of the measures established by the Service for this purpose, but only to make a survey so that their practical results and the extent to which they are being carried out into practice may be verified.

1. REPORTING OF THE CASE

For an effective control of any epidemic, prompt and complete reporting of cases is of prime importance. Since 1916, reporting of cases had been steadily improving to such an extent that the increase noted in the incidence in past years was mostly due to this improvement in reporting. When the Committee assumed its work, it was realized that there is a relatively large proportion of cases that were not being reported, on account of the failure of hospitals and private physicians to report their cases. This being the case, a request was made to the hospitals directors and private physicians to coöperate with the Service in its campaign by reporting within the shortest time possible every suspect or true case of typhoid fever coming under treatment. This request was made, not only by written circulars but also by personally taking advantage of the inspections made by the members to private and public institutions. Notification cards with attached postage stamps were freely distributed to physicians on request and blank forms for hospital notifications prepared for the purpose. A general house-to-house canvass was also made by inspectors. The result of this campaign was so gratifying that the number of suspected cases reported was very much more than the number of true and confirmed cases. It is estimated that not less than 95 per cent of all cases are at the present time reported, not only by

physicians and hospitals, but also by the very members of the patient's family and by inspectors of the Service as well.

2. DIAGNOSIS

One of the handicaps met with by the Service in the effective control of typhoid fever depends on the method of diagnosis employed to verify the nature of the disease. This difficulty has been a problem, not only in the past but also during the present epidemic. A quotation of the most important conclusions of the Committee for the investigation of typhoid fever appointed on November 24, 1916, has been made at the beginning of this report. The conclusion No. 3 thereof, has already made mention of the question of the diagnosis, in the following words: "the serological test, Widal reaction, has been found to be the only reliable diagnostic test both of patients and presumptive carriers." The present Committee, however, does not agree with the above-quoted conclusion in regard to the diagnosis test. We have found that the serological diagnostic tests *only*, do not constitute a satisfactory method of diagnosis for the present, in the first place, because it does not give the desirable percentage of confirmation, and in the second place, because of the extension given to the use of the anti-typhoid vaccine for the control of the disease. Other methods of diagnosis have, therefore, been resorted to, in order to meet the needs of the present situation within the facilities of the Service. Stool specimens were sent to the laboratories for diagnostic purposes, not only of actual cases but also for the detection of typhoid carriers. Blood culture has so far never been tried in the present campaign, taking into consideration the fact that about 80 per cent of the cases are being reported late, ordinarily after the first week or more from the onset. In regard to carriers before this time, the only method used for their detection was the serological examination of blood. This, of course, does not give any evidence of proved germ-carrying conditions, altho the persons found positive (Widal) were considered as presumptive carriers and from them stool specimens were later taken for the confirmation of the diagnosis. In the meanwhile, measures were being taken to control them.

It has been said at the beginning that the diagnosis of typhoid cases has constituted a handicap to the work of the Service in connection with the control of typhoid infection. More explanation of this statement is believed to be unnecessary since a majority of the cases reported and taken as typhoid fever

(73.74 per cent) have not been confirmed by any laboratory method except perhaps by the clinical manifestation of the disease, as shown in the following table:

TABLE XXXVII.—*Diagnostic methods employed (all cases)*

Months.	Total cases.	Typhoid fever.			Para-typhoid A & B.			Total.		
		Blood reaction.	Stool.	Clinical.	Blood reaction.	Stool.	Clinical.	Blood reaction.	Stool.	Clinical.
January.....	85	23	.....	60	2	.....	.....	25	.....	60
February.....	151	58	6	77	4	6	.....	62	12	77
March.....	246	32	14	195	2	3	.....	34	17	195
April.....	220	11	.....	205	.....	4	.....	11	4	205
May.....	138	45	.....	88	1	4	.....	46	4	88
June.....	131	35	.....	91	.....	5	.....	35	5	91
Total.....	971	204	20	716	9	22	.....	213	42	716
Percentage..	.....	.....	.....	.....	.....	.....	.....	21.94	4.32	73.74

The large percentage of cases appearing to be diagnosed without confirmation by any of the known laboratory methods seems to be a paradoxical result, since we know that 80.85 per cent of the total cases in the City of Manila have been taken to hospitals for treatment. In the opinion of the writer, this result may probably be explained if we know that the confirmation of diagnosis by laboratory methods performed in private hospitals is not reported to this Office and that no laboratory diagnosis is made on account of the lack of clinical laboratories in several private hospitals in the city. To correct the above-stated deficiencies in the diagnostic methods, the Committee has taken steps (a) to improve our diagnostic methods and (b) to increase the percentage of cases confirmed by laboratory methods affording coöperation to private physicians and hospitals and by giving them facilities for laboratory diagnosis. In the first place, an arrangement has been made with the Chief of the Biological Department of the Bureau of Science to devise a proper method of securing specimens and submitting them for laboratory examination, while, on the other hand, the Service has been asked to furnish more personnel for the collection of stools and blood specimens for diagnostic purposes. The Committee, furthermore, has made visits to the various hospitals, and agreed with the corresponding superintendents and directors to make, free of charge, any laboratory work for typhoid diagnosis requested in case of free patients. While some hospitals took advantage of this agreement, the others, however, continued, we presume, making their own diagnosis or submitting the specimens to other laboratories for diagnostic purposes. The

specimens are submitted to the laboratory according to the rule given by the Service as suggested by the Bureau of Science. Blood specimens are collected in Wright tubes and stool specimens are collected in glycerine-salt solution and submitted as soon as possible for examination to the Bureau of Science.

Supplementary to the clinical and laboratory methods of diagnosis, we have also taken into consideration the autopsy performed in cases of doubtful diagnosis.

Another important point that should be discussed in connection with the topic of diagnosis is the question of whether or not all the cases taken as confirmed cases are true cases of typhoid fever. The rather unusual characteristic of this outbreak (incidence, prevalence, etc.), the duration of illness in a good proportion of the cases (see Table XXXVIII), and the large percentage of cases without confirmation by anyone of the laboratory methods employed, induce the writer to accept with caution the high incidence submitted as reliable. In other words, we believe that several of the cases, altho small, reported and recorded as typhoid, are not true cases of typhoid fever. The opportunity to gather evidences of this fact was had by the Committee in the course of this investigation and especially from the investigation of cases which were reported as having had vaccination previous to the attack of the diseases. Out of the total number of cases reported, many have lately been discarded as non-typhoid. Some of these cases, while reported as Widal-positive, showed clinical symptoms that discard the possibility of their being true cases of typhoid fever. The positive Widal results were found to be due either to previous vaccinations or previous attack of typhoid fever. The same may be said in some of the cases which, by reason of errors of memory or of statement or by incomplete investigation, have not been excluded from the records of typhoid fever.

As a matter of fact, the question of diagnosis is a question that must be considered by the Philippine Health Service in connection with communicable diseases.

TABLE XXXVIII.—*Duration of illness in 825 cases of typhoid fever*

Duration of illness.	January.	February.	March.	April.	May.	June.	Total.
1 to 5 days.....	1	3	1	1	1	4	11
6 to 10 days.....	7	6	8	4	3	11	39
11 to 15 days.....	6	7	16	9	5	14	57
16 days and over.....	24	70	94	77	44	81	340
Unknown.....	33	45	105	90	61	44	378
Total.....	71	131	224	181	114	104	825

3. ISOLATION AND NURSING

The facts that resulted from the investigation of the Committee were found to be unsatisfactory regarding the isolation and nursing of typhoid cases.

(a) Isolation in Private Houses

In private houses, isolation was found to be a difficult measure to accomplish. Considering the habits, customs, manner of living, feelings, and the house conditions of the majority of the average population, we found it easy to understand how difficult it is to establish an effective isolation and avoid secondary cases in private houses. The same condition is true with the sick nursing methods; the patient is commonly found nursed and cared for by two or three different members of the family without taking any protective or prophylactic measures to prevent infection. Sometimes a food-handler or the member of the family who prepares the family food is the one that at the same time takes care of the patient.

(b) Isolation and Nursing in Hospitals

The findings obtained from the investigation in Hospitals made by Major Davison, Dr. Leach, and the writer show that in general typhoid patients, except those private pay-patients, are placed in general wards together with other patients under the care of same nurses of the ward. No practical separation from other non-typhoid patients exists nor is a especial nurse detailed for their care. The admission of visitors to typhoid patients is more or less regulated with the same rules followed for other non-typhoid patients. Concurrent disinfection in typhoid cases and hand disinfection for visitors and other persons entering the wards, altho practicable in some of the hospitals, is not believed effective, however, since it is not strictly enforced or duly supervised. Under these circumstances, cross infection, mechanical and contact transmission are but results that may easily take place and, in fact, it might have resulted so. We know of hospitals and other institutions where some of the staff have possibly contracted the disease in this way.

Taking into consideration all these facts and the facilities and conditions available in hospitals and private houses, the Committee has recommended a set of rules and regulations to be followed by all concerned in the admission, isolation, nursing and care of patients by regulating at the same time the admission of visitors. In houses not having such facilities and conditions to insure an effective isolation and protection for the rest of

the inmates, no permission was granted to lodge or take care of typhoid patients therein.

The campaign of the Committee in this sense has resulted in (a) the improvement of isolation and nursing methods in the hospitals though not yet completely satisfactory, and (b) the increase in the number of cases taken and treated in private and government hospitals.

4. DISINFECTION

Under the control of the disinfecting squads of the Philippine Health Service, the disinfection of the premises, especially concurrent disinfection, is performed in the case of typhoid patients. Unless especially requested by hospitals, disinfection in these places is often left by the Service to those in charge of the same institutions.

5. INSPECTION AND FOLLOW-UP OF CASES

As a supplementary measure under the Section of Epidemiology of the Service, the inspection and follow-up of the cases has been resorted to.

Inspections in the residences of cases are made at regular intervals, chiefly to detect any secondary case that may follow. Any other person found by the inspectors to be complaining of any ailment is immediately reported to the station health officers for diagnosis and action. The same action is taken in cases recovered and discharged from hospitals. Stool specimens are secured from these persons for six consecutive times, as often as daily if possible, for the detection of carriers. All those found to be positive carriers are recorded and for these a special file is kept in the Office of Epidemiology for future action, the incumbent being at the same time isolated.

6. TYPHOID INOCULATIONS

In connection with immunization against typhoid infection, three factors should be considered: namely, (1) the kind of typhoid vaccine, (2) the number of vaccinations that can be made, and (3) the effect of vaccination.

1. Anti-typhoid vaccination had been ordered to be used about 14 months before the present epidemic. At first, the kind of vaccine used was prepared with killed bacilli in the following proportion: 250-million typhoid bacilli and 125 millions of each para-typhoid A and B to every c. c. given at the dose of $\frac{1}{2}$ c. c. for the first injection, and one c. c. for the second and third injections. Lately, the mixture has been increased to 500-million typhoid bacilli and 250-million of each para-typhoid A and B. The last preparation seemed to be more effective; there having

been found, however, difficulties to give a complete series of three inoculations to each person, on account of the reaction following injection and also, in the majority of the times, because of the difficulties encountered in getting the persons after the first and second injections.

In view of this fact and on account also of the existing epidemic of cholera, the members of the Committee on vaccination thought it feasible to reduce the series of immunizations to two inoculations instead of three by using a mixed cholera and typhoid vaccine in the proportion of 2,000-milion cholera vibrio and 500-milion typhoid bacilli in the c. c. given one c. c. for the first injection and another c. c. for the second. This kind of vaccine was prepared and its use was begun in March of this year.

2. As far as we know, there is no record of typhoid inoculations on a large scale that has ever been made in a civilian population. The writer has personal knowledge of such an immunization being performed in the municipality of Alaminos, Pangasinan. This trial has rendered a remarkable decrease in the incidence of typhoid fever in that municipality. In the City of Manila, a trial was made in 1912 among the nurses of the Philippine General Hospital. Since that time, however, no other attempt was made to propagate the use of this prophylactic measure until 1920 (August), when vaccination for typhoid fever was begun for the civilian population in the City of Manila first and slowly propagated to the provinces. At the beginning, the measure aroused some objection on the part of the public, but later the people submitted themselves with gratifying results. During the present epidemic of typhoid fever the press in the city published certain items of information arousing in the public the doubt as to the efficiency of the vaccine and insinuating at the danger of using the typhoid vaccine as being more or less the determining factor in the causation of typhoid fever. In spite of these alleged facts, however, the Service has made an active campaign and organized a more systematic immunization with the results that within the first six months of 1922, there were more than five (5) times the number of anti-typhoid injections performed as compared with the total made in 1921.

3. There is no doubt that with the campaign of anti-typhoid vaccination, we obtained good results. In the first place, we estimate that at least 10 per cent of the population in Manila is immunized; and in the second place, the attention of the public has been more drawn than before to typhoid infection and its

prevention and impressed with the danger of this disease. To such an extent is this impression felt by the public that a good many voluntary requests for typhoid inoculations have been received in the health stations during and after the climax of the epidemic.

In relation, further, with typhoid inoculation, some other facts had been taken into consideration and were used as subjects of the following recommendations of the Committee:

1. In view of the apparent impossibility of making a wholesale inoculation and attaining a larger percentage of immunization in the whole population of the City of Manila and taking into account that the largest percentage of typhoid cases occurs in the group of the population between the ages of 10 to 30 years, for the immediate and effective control of the outbreak, we suggested that inoculations be made primarily among (a) contacts, immediate and distant, (b) among food-handlers, (c) among students in public and private schools, and (d) among employees, clerks, etc., of Government offices.

2. It was noted that while many people have received the first inoculations, a large majority of them, however, have not had the complete series of inoculations to afford the expected immunity. The immunization figures, therefore, are entirely misleading and may give a false feeling of safety in the mind of the people. The Committee felt it to be its duty to call the attention of the Executive Committee to this fact and recommended that it carry out as far as possible a complete immunization in each individual vaccinated.

6. SUPERVISION OF FOOD-STUFFS

(Markets, restaurants, *tiendas de sari-sari*, etc.)

Knowing the rôle played by contaminated foods, food-stuffs, etc., in the causation of typhoid fever, it is but reasonable to assume that an effective control and supervision of all places, public and semi-public, as the most important sources of distribution thereof, is an important factor as a sanitary measure to minimize the danger of infection from these places.

There are regulations of the Service regarding especially the physical examination of the personnel attached to the preparation or service of foods, including immunization against cholera, typhoid fever and small pox, the inspection of the place from the sanitary point of view, their licensing and the supervision of the preparation, handling, and storing, of the foods in the factories or in dealing places. To verify whether or not these regulations are complied with, several members of the Committee have

made a survey of a good number of these places, with the result that while these regulations are partly complied with, in general, the factories, markets, etc., are running their business without complying with the most important stipulations of the regulations. Aërated water factories, ice-drop factories, ice-cream factories, ice factories, restaurants, markets, etc., have been the subject of the Committee's inspections. While in some of these places the personnel does not have the required certificate of health and vaccination, in some others the methods of preparation and the way of handling are defective and a lack of systematic supervision over them is noted in general.

In view of these facts, several recommendations consistent with the findings of the Committee have been made. In other parts of this report, these recommendations are transcribed.

SUMMARY OF THE FINDINGS

1. The center of incidence of the present typhoid fever epidemic does not coincide with the center of population.

2. The incidence is very much higher: (a) in the districts located on the north side of the Pasig River; (b) more among Japanese than among other nationalities; (c) among males; (d) in the groups of population from 11 to 20 and from 21 to 30 years of age; and (e) among the unvaccinated people.

3. The case fatality of the present epidemic is 27.75 per cent among city cases and the mortality is 1.53 for each 1,000 of population. The fatality and mortality figures keep, however, no relationship with the incidence. The fatality in cases kept and cared for at home is remarkably higher than the cases treated in hospitals. The fatality is, further, in inverse proportion to the duration of time elapsed, from onset to the date the case is reported. The fatality of the present epidemic is remarkably lower than the fatality observed in the last six years, with the exception of that corresponding to 1918.

4. There is still a relatively large proportion of cases that are not reported except when already dead. No mortality among persons who have received the complete series of inoculations prescribed (two c. c. of the mixed typhoid and cholera vaccine or 2.5 c. c. of the T. A. B. vaccine).

5. Typhoid infection predominates over that of paratyphoid A and B with the interesting particular that among carriers, paratyphoid A infection is the more prevalent.

6. Late reporting of cases and ineffective isolation in houses are instrumental in the large percentage of contact and secondary infections.

7. Immediate contact infection is responsible for a good proportion of cases, but a larger one is probably due to contaminated water, milk, ice cream, and other food-stuffs on account of faulty handling.

8. The water supply and the sanitary sewer system are apparently not to be considered causes of the present epidemic.

9. The most important factor that influenced the present outbreak is assumed to be the large amount of unsuspected "ice-drop" and the kindred "frozen sugar-water" consumed during and before the Carnival season. No other factor can reasonably be admitted to explain partially at least, such a quasi-massive infection a little before, during and after the Carnival Week.

10. Carriers' control is a factor that has not been given proper attention in the past. It is estimated that there are not less than four carriers to every 1,000 of population in the City of Manila. There are 4.71 convalescent carriers for each hundred cases; 1.18 carriers in every hundred contacts; 3.15 per cent among water-carriers and 1.22 per cent among food-handlers.

11. Isolation, as found by the Committee, is relatively better practiced in hospitals than in private houses. In general, however, it is not so effective or practical as it should be.

12. Diagnostic methods are unsatisfactory and defective.

13. Vaccination against typhoid was found to be, to a certain extent, ineffective since a large majority of the reports gives a great percentage of people having been given a single injection only. Typhoid inoculation on the other hand, either using the mixed cholera-typhoid or the T. A. B. preparation, *if the series is completed*, seems to afford a good protective measure and an effective means of controlling an epidemic.

14. Supervision of the prepared foods and water, food-stuffs, ice cream, ice-drops, etc. has been somewhat neglected and the enforcement of certain regulations relaxed.

GENERAL RECOMMENDATIONS

1. General sanitation, as refers to waste disposal, garbage, and other refuse, its use as a filling material, flies campaign, drainage, etc., must be given more attention.

2. The water supply of the City of Manila must be improved by bettering the water treatment methods now employed.

3. Strict supervision of and enforcement of sanitary rules and ordinances in all factories and other public places used as centers of distribution of foods and food-stuffs. Similar supervision must be exerted over all food handlers.

4. The campaign for the search and discovery of typhoid and paratyphoid carriers must be continued as routine work. In-

cubation carriers, contact, convalescent, and chronic healthy carriers, especially among food-handlers, must be the subject of preferent attention.

5. The follow-up and control of carriers is a very important factor and should not be overlooked.

6. Prompt reporting of cases must be secured from all physicians and hospitals.

7. Diagnostic methods must still be improved. The Philippine Health Service must furnish all facilities for laboratory diagnosis.

8. Isolation and nursing methods in hospitals must be effective and carried out more or less in accordance with the regulations recommended by the Committee.

9. Incomplete individual vaccination should not be permitted.

ACKNOWLEDGMENT

The Committee hereby expresses its appreciation and thanks to the Army Medical Officers and to the Bureau of Science for the works done in behalf of this investigation.

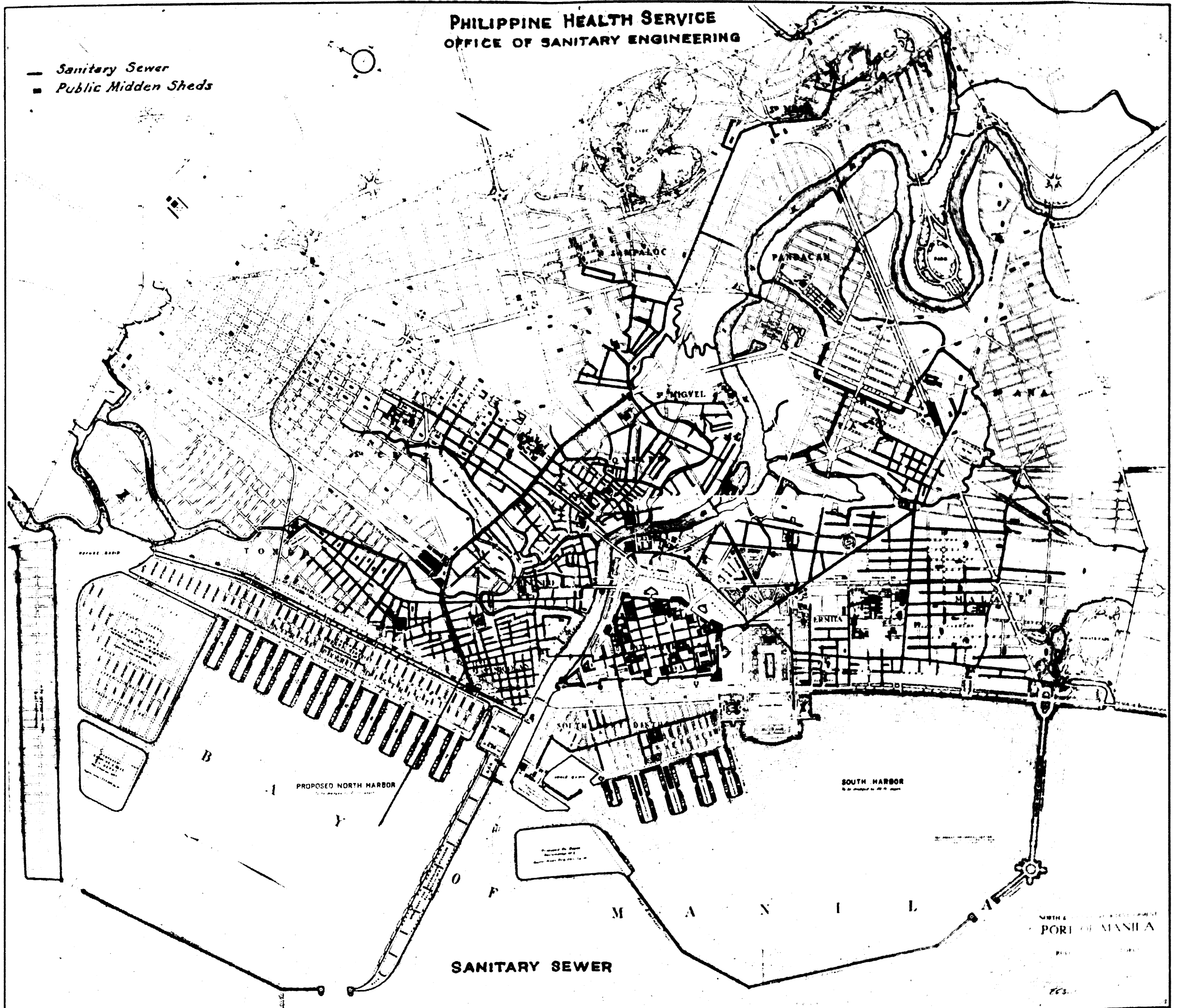
For the the Committee,

L. LOPEZ RIZAL

Chairman, Committee on Typhoid Investigation

PHILIPPINE HEALTH SERVICE
OFFICE OF SANITARY ENGINEERING

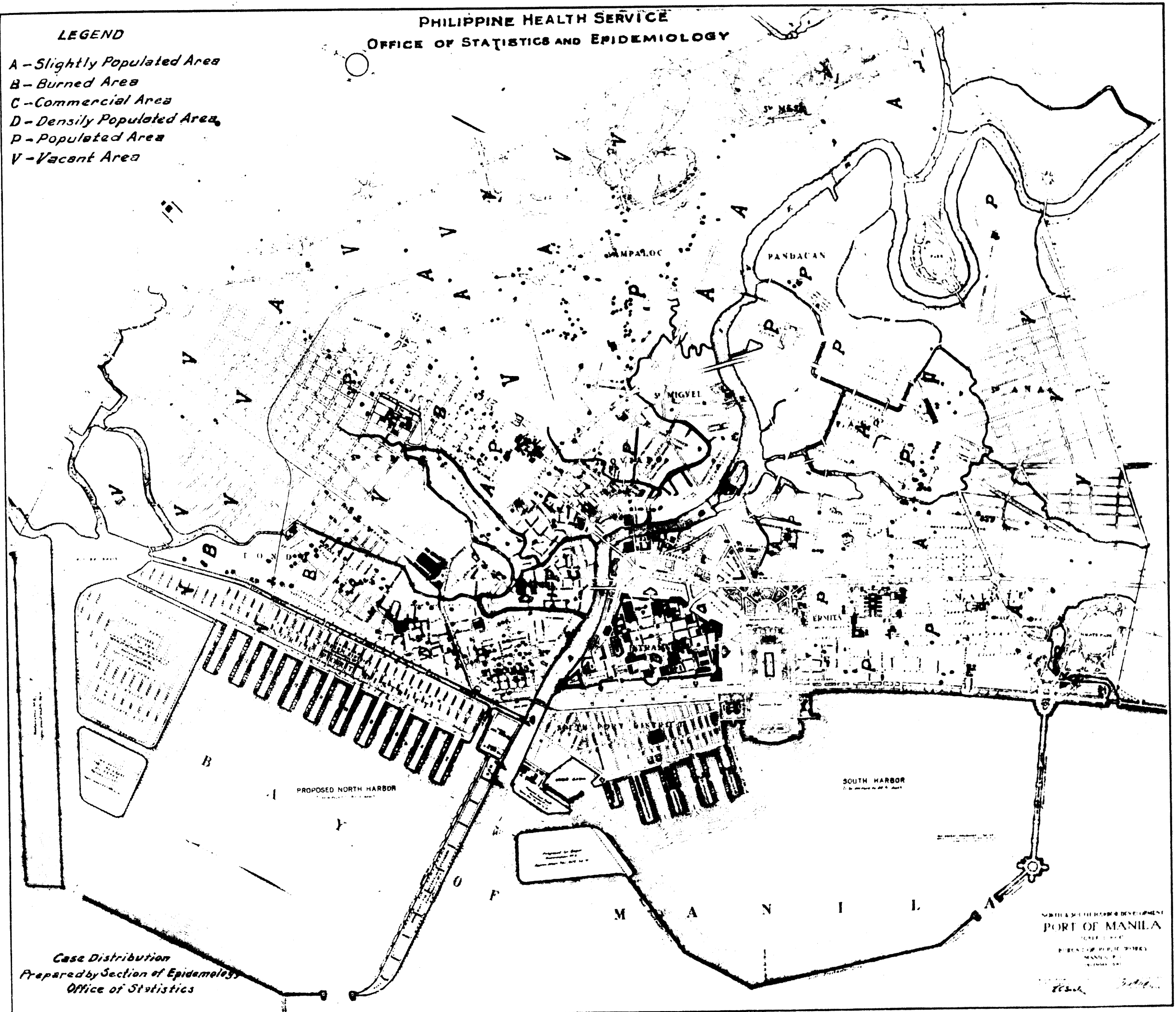
- Sanitary Sewer
■ Public Midden Sheds



PHILIPPINE HEALTH SERVICE
OFFICE OF STATISTICS AND EPIDEMIOLOGY

LEGEND

- A - Slightly Populated Area
- B - Burned Area
- C - Commercial Area
- D - Densely Populated Area
- P - Populated Area
- V - Vacant Area



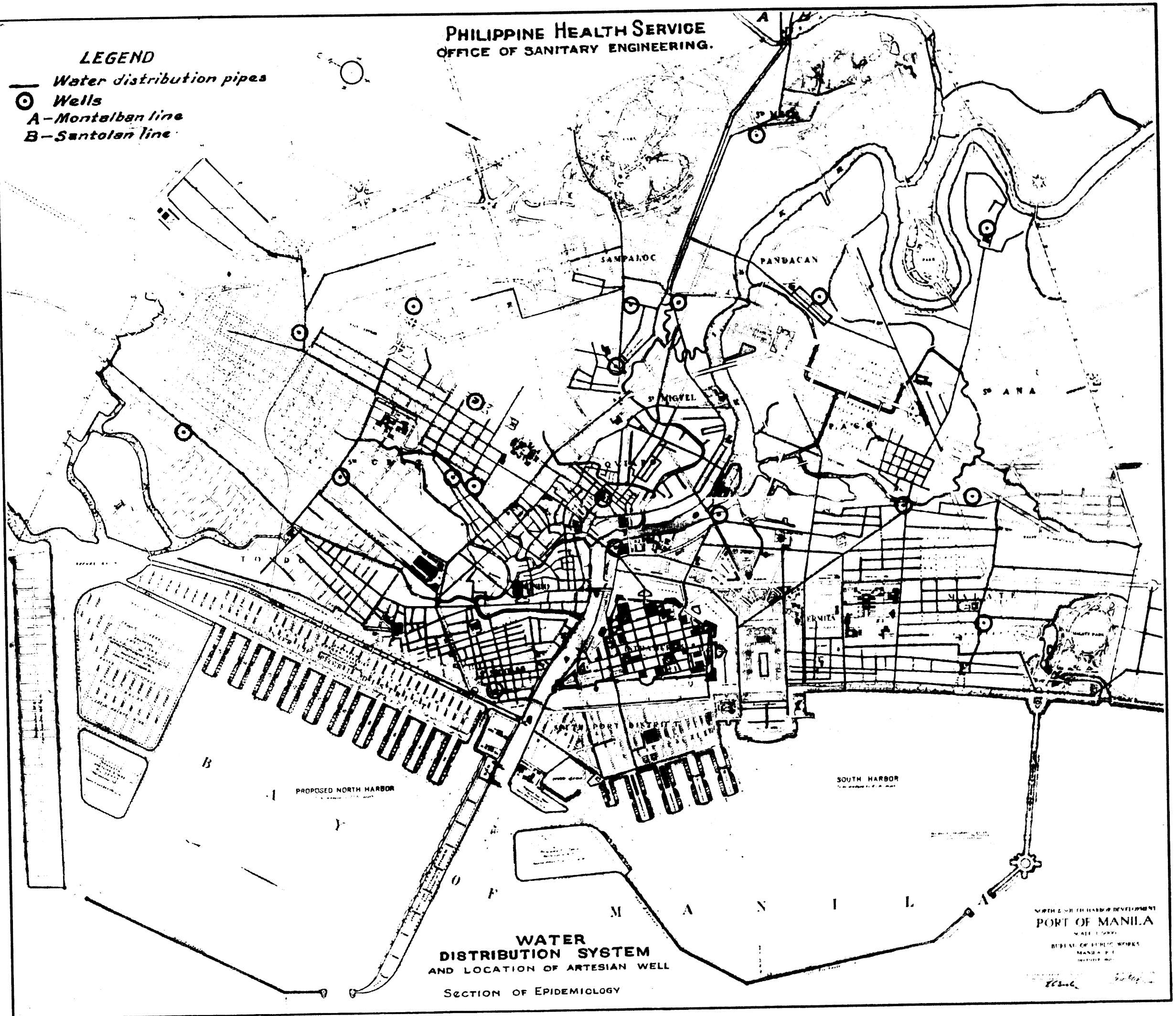
Case Distribution
Prepared by Section of Epidemiology
Office of Statistics

MANILA SOUTH HARBOR DEVELOPMENT
PORT OF MANILA
BUREAU OF PUBLIC WORKS
MANILA, P.I.
JANUARY 1941

PHILIPPINE HEALTH SERVICE
OFFICE OF SANITARY ENGINEERING.

LEGEND

- Water distribution pipes
⊙ Wells
A—Montalban line
B—Santolan line



EXCERPTS FROM THE MINUTES OF THE TYPHOID INVESTIGATION COMMITTEE

The following are excerpts from the minutes of the meeting of the Typhoid Investigation Committee, with various headings for the purpose of convenience:

INQUIRIES

1. That a copy of the report be requested from Mr. Gideon, of the Metropolitan Water District, on the monthly examination of the water supplied to the city (April 12, 1922).
2. Resolution instructing the Secretary to request the Executive Committee please to send copies of circulars and other details when any allusion to them is made in their communications to the Typhoid Investigation Committee. This request is made because during the meetings of the Typhoid Investigation Committee mere citation of such circular does not facilitate action on them by the Typhoid Investigation Committee (May 4, 1922).

INSPECTIONS

1. That ice factories and ice cream factories in the city be inspected by members of the Committee (April 12, 1922).
2. That the members of the Committee should visit the hospitals of the city and determine whether or not the proper measures of isolation and disinfection are being observed (April 15, 1922).
3. Resolution requesting the Director of Health to assign at once ten nurses for service in the present typhoid epidemic (April 15, 1922).
4. Doctor Lopez and Doctor Davison communicated to the Committee their findings, after inspecting the various hospitals of the City of Manila, with regard to the proper precautions taken in their cases of typhoid. It was agreed that they should submit their findings in writing (April 15, 1922).

It was agreed that arrangements be made with Dr. Tee Han Kee, of the Chinese General Hospital, so that the Committee may go and visit that Hospital (April 15, 1922).

5. The Chairman announced that eight nurses had already been assigned for the typhoid campaign, and that the authorization for the appointment of forty-six sanitary inspectors has been received. (April 19, 1922.)
6. In making an inspection of the hospitals of the city, one of the practicing physicians suggested that the public be informed daily of the incidence of contagious disease cases. In view of this suggestion, the Committee would respectfully recommend to the Director of Health that a daily health report be issued to the press with the official signature of the Director of Health.

7. Doctor Lopez and Doctor Davison rendered a written report on the results of their inspection of the drinking water and aerated water factories

of the city. This report is to be attached as part of the minutes of this meeting. In this connection, it was the sense of the Committee that managers of aerated water and drinking water factories of the city should be advised to have their employees and laborers examined. This examination will aim especially at excluding those suffering from skin diseases and those who, after bacteriological examinations, are found to be carriers of intestinal diseases like typhoid fever and cholera. This examination should be made once a year. It was resolved that the Director of Health be requested to appoint especially one sanitary inspector whose duty shall be to see that the regulations, as prepared by Dr. Heiser in 1915 with reference to drinking water and aerated water factories, are carried out by the factories.

8. Doctor Davison reported that he obtained eighteen (18) samples from the ice-cream street sellers. He took all possible precautions so that no outside contamination occurred (May 4, 1922).

9. *Report of Doctor Davison.*—He examined reports of 407 typhoid cases in an effort to find out a relation between their incidence and the type of sewage disposal used. He called attention to the fact that certain flush-toilets are located in a region where the majority of the people use public midden sheds. Of this number, 162 cases used flush-toilets, 45 private pails, and 200 cases used the public midden-sheds. He called attention to the very bad condition in which the latter are kept, some pails having no cover, others having no boxes, the predominance of flies in the vicinity, etc. In view of these conditions, it was resolved that the Committee transmit its findings on them to the Director of Health, so that the necessary action may be taken by him.

Doctor Davison also reported seven (7) cases of convalescents in which, soon after discharge, immediately changed address, some to the provinces and some to unknown addresses in the city. Hence, the difficulty of tracing them and the necessity of early report after discharge from hospitals (May 9, 1922).

10. *Report of Doctor Davison.*—He visited the N. & B. Stables and found very unsatisfactory conditions of the flush-closets, the over-crowding in the tenement houses, the abundance of flies, the non-screening of a restaurant in the N. & B. Stables etc., (May 11, 1922).

11. Doctor Gabriel reported on his findings on the unfinished business of Meeting No. 9. He recommended that street drains should be constructed by the City of Manila to connect with the drains of the stables that have been approved by the City of Manila and the Philippine Health Service. This matter is to be delegated to the Chairman of the Executive Committee, so that he may confer with the city authorities. Doctor Gabriel also recommended that closer supervision be exercised in enforcing the covering of manure cans in the stables of the city.

HOSPITAL AND CARRIERS

1. On account of the neglect of practicing physicians in reporting the occurrence of typhoid cases, it was resolved that the Director of Health be requested to prepare a circular letter to all practicing physicians of the city, to directors and superintendents of hospitals, to presidents of medical societies, to directors of schools and colleges. This circular will ask the coöperation of these entities in reporting early the occurrence of any typhoid case and suspect and also the date of its discharge. This circular

will also contain some form of agreement by which the attending physician will be held responsible for the disinfection of the premises where the typhoid case or suspect is, and to take such preventive measures so that the contacts will be satisfactorily protected from contamination. A receipt is to go with this circular to be signed by the addressee (April 12, 1922).

2. That a system of following up carriers and convalescents be devised and carried out effectively. The discharge of the carriers should be based on daily successive negatives of the stool examination for five days, after 15 days of normal temperature (April 12, 1922).

3. That hospitalization be made compulsory in cases of typhoid fever where the sanitary authorities feel that they do not have the proper facilities for the protection of the contacts (April 12, 1922).

4. (a) That hospitals having typhoid cases should provide for special nurses whose duty shall be to attend to typhoid cases only, without attending other cases in the same hospital.

(b) That inasmuch as most of the cases of typhoid fever in the private hospitals are pay-patients, these hospitals should provide a typhoid room or ward properly screened against flies. This condition should be required of all hospitals admitting typhoid patients. If possible, steps should be taken by the health authorities making this provision of screening a room, especially for typhoid cases, a condition *sine quanon*.

(c) That the health authorities should take up with the directors of hospitals the question of the proper disposal of the feces, urine, and other secretions of the typhoid case, in such a way that they are properly placed in receptacles which will be properly disinfected. Toilets should also be supervised so that they are properly flushed and the toilet room and its walls and floors are properly cleaned and disinfected.

(d) The regulation of visitors of the typhoid case should also be a matter to be taken up. The idea is to limit as much as possible the visitors to the typhoid case, to the immediate relatives of the patient, and to limit the number, if possible to one or two, of the latter during the stay of the patient in the hospital.

(e) Towels, linen, pillows, and other articles used by the patient should be placed immediately after use into a special receptacle and immediately disinfected or autoclaved.

(f) The kitchen should be made as fly-free as possible and should be located in a place in the hospital as distant as possible from the typhoid ward. Arrangement should be made also by which all the places and other table utensils used for the typhoid cases should be thoroughly boiled before entering the kitchen. (April 19, 1922.)

5. Resolved that all typhoid carriers should be hospitalized. In cases where resistance on the part of the public is encountered, the Executive Committee or the health officer concerned should be allowed to use his own discretion and judgment, so that spread of diseases thru the carriers is reasonably guarded against. This step should be taken by carefully following up the whereabouts of the carrier concerned. (April 26, 1922.)

BACTERIOLOGICAL

1. That a circular be issued by the Director of Health, ordering that a special media, prepared for typhoid by the Bureau of Science and containing glycerin for the collection of specimens of feces, be used in the health stations of the city. This circular will contain detailed instruc-

tions as to the manner of collection of the feces and the preparation of the specimens. It is also requested that a technician with reliable knowledge of the technic of this work should be detailed in each station. (April 12, 1922.)

2. That the feces examination of all food sellers in the markets be undertaken. It was observed that these sellers have not undergone the routine laboratory examination required of licensed sellers before issuing a license, because no such license is required of them in the markets. The technician, as provided in paragraph 5, is to take charge of this examination. (April 12, 1922.)

3. Typhoid cases treated in private hospitals should be followed after discharged by the sanitary personnel to their residence and regular feces examination required until five consecutive daily negatives are obtained from them. In case the person who has been sick with typhoid fever is already going around on his business, arrangements may be made with the firm or person employing him so that the necessary examinations may be made. (April 15, 1922.)

4. That arrangement should be made whereby the examination of typhoid (Widal and feces) be made free by the Bureau of Science for the cases of typhoid fever in the private hospitals of the city. This arrangement should be taken up by the Director of Health with the Director of the Bureau of Science, and the various chiefs of the private hospitals of the city. (April 19, 1922.)

5. Resolution to request the Executive Committee that a copy of the report of the feces examination of convalescents, carriers, and contacts of typhoid be sent to the Consulting Epidemiologist. (May 4, 1922.)

6. Paragraph 2, Meeting No. 7, Doctor Gabriel suggested that a blank form be devised by the Consulting Epidemiologist to be used in stations. This blank form will contain: the date when specimens were taken from convalescents, contacts, and discharged cases; how many specimens have been taken, etc. Doctor Lopez will devise such a blank form. (May 11, 1922.)

FOOD AND BEVERAGES

1. That before any license for selling food stuffs can be issued, the approval of the health authorities in the sense that the person applying for the license is not a communicable disease carrier, should be required before his application is acted upon by the municipal authorities. It is the sense of this Committee that this priority of approval is very important in the prevention of the spread of the disease by the food venders. A municipal ordinance should be enacted in this sense.

2. That the license of food pedlers, hawkers, and sellers should be placed on an easily visible place in the cart or basket containing the food for sale.

8. That the practice of issuing special permissions in the health stations to food sellers for a period of days for local *fiestas*, *galleras*, etc., be discontinued. That in their place, regular permissions be issued by the health authorities covering the period of three months. Before this permission is granted, the health authorities should obtain feces specimens for examination for typhoid and cholera at least twice and should assure themselves that the person to whom the permission is granted is not a carrier of any of the foregoing diseases. (April 15, 1922.)

4. It was resolved that the Executive Committee be requested to take up with the Mayor of the City of Manila the question of the cleanliness

of the food-sellers in the markets, the covering, and the handling of the food for sale, so that they may be improved as much as possible. The Executive Committee is also requested to work with the Mayor of the City, so that those sellers who do not comply with the regulations, which the Executive Committee may see fit to issue, may be deprived of the privilege of selling in the markets. (April 22, 1922.)

5. It was resolved to send a letter to the Executive Committee calling attention to paragraph 2 of the minutes of the meeting held on April 22, 1922. With this letter, a copy of the regulations of Doctor Heiser on aerated water and bottled water factories is to be included in (pages 93 and 94, paragraphs 481 and 489, inclusive) Sanitary Inspector's Hand Book. Besides the foregoing regulations, the Executive Committee should be requested to exclude from the factories above any employee or laborer suffering from skin diseases. (April 26, 1922.)

6. It was resolved that the prohibition of the sale of scraped ice should stay as has previously been ordered. This question was taken up in view of the application of a Japanese seller who presented a machine to scrape ice. He maintained that the ice will be scraped by a machine without chances of contamination. (May 4, 1922.)

7. Doctor Gabriel suggested that no serving of ice, soft-drinks, lemonades, iced refreshments should be allowed in *sari-sari tiendas*. If such should be allowed, they should be served in separate places, like ice cream stores.

8. The correspondence between Doctor Rosario and the Consul General for Japan was presented with reference to "frozen sugar water." The members of the Committee, who were present in this preparation of the "frozen sugar water," reported that the preparation as inspected was satisfactory, and recommended that the sale of "frozen sugar water" should be approved. Specimens should frequently be taken; and in cases where two successive examinations should reveal the "frozen sugar water" as unfit for human consumption, the permit in the store concerned should be withdrawn. (May 23, 1922.)

9. Doctor Gabriel presented a list of the examinations of ice cream and *sorbetes*. It was noticed that most of the ice cream was unfit for human consumption. It was, therefore, resolved that a minimum standard of bacteriological requirements should be established for such ice cream and refreshments. At the time, it was felt that amount of more than 100,000 bacteria a cubic centimeter should be sufficient reason to prohibit the sale of ice cream. This count is taken temporarily as a standard, subject to whatever regulations the Board of Control on Foods may have in force. The presence of *B. Coli* should also be considered sufficient reason to prohibit the sale of ice cream. In any case, two weeks' time should be given the ice cream stores so that they may improve their manner of preparation. After this time, if no improvement is observed, the sale of ice cream in their place should be discontinued. (May 23, 1922.)

10. The Committee was called to the Office of the Director of Health. The Director wanted to know if the prohibition of the sale of ice in any form in *sari-sari tiendas* can be rescinded in view of the fact that the sale of ice by the ice factories in the city has been markedly decreased. This subject was discussed thoroughly by the Committee which decided against the rescision of the prohibition for the following reasons:

(a) The prohibition of the sale of ice in *sari-sari tiendas* is a temporary measure that may be made permanent. It was ordered in view of the results of the bacteriological examination of refreshments where ice is used.

These results are not due to the poor ice, but to the very improper handling of the refreshment.

(b) Ice can be sold and served in parlors, restaurants, and in refreshment stores which are specially fitted for serving refreshments where ice is used.

(c) Ice is not included in the list of the products that can be sold in the recent classification of *sari-sari tiendas*.

(d) The Committee suggests that the sale of ice may be somewhat increased by allowing the ice factories to establish branches in various parts of the city where ice can be sold in any form. These branches have to be licensed in accordance with the rules and regulations of the Philippine Health Service. (June 15, 1922.)

VACCINATION

1. In view of certain statements in the press, suggesting doubts as to the purity and effectiveness of the typhoid vaccine now being used by the Philippine Health Service in the present typhoid campaign, Doctor Arguelles suggested that steps might be taken by some Government offices whereby certain standards of purity, potency, and harmlessness could be established and constantly kept in the manner that is now being done by the Hygienic Laboratory at Washington, D. C. The Committee concurred on the importance of this constant supervision of sero-vaccine, and other biological products. It was, however, felt that the question should be taken up at the next meeting of the Committee. (May 9, 1922.)

2. It was resolved that certificates of prophylactic inoculations for typhoid fever be issued only to those who, by law, regulation, or who, at the discretion of the health officer, needs such a certificate for the enforcement of sanitary regulations, and do not need to be issued certificates. A record of the vaccination should, however, be kept at the health station. (May 11, 1922.)

3. Doctor Arguelles was assigned as a Committee of one to present a memorandum on the supervision of vaccines, sero and other biological products. (May 15, 1922.)

4. Doctor Rosario suggested that the Bureau of Health request the Bureau of Science to prepare some sensitized vaccines to be tried in the vaccination campaign. (May 15, 1922.)

5. Resolution that a letter be sent to the Director of Health, inclosing a memorandum presented by Doctor Arguelles about the control and supervision of biological products used in the Philippine Islands. The letter should also contain a request to the Director of Health to the effect that he takes up the matter with the proper authorities along the line of the memorandum. (June 28, 1922.)

INQUIRY

1. Resolved that the Executive Committee be requested to render to the Typhoid Investigation Committee a summary report every week of the action taken with reference to the recommendations of the Typhoid Investigation Committee. This report will cover point by point each recommendation of the Typhoid Investigation Committee. In case a recommendation has not been properly carried out, the Executive Committee should be requested to give the reasons therefor, and also to suggest the plan which it may think is more realizable. To facilitate reference to the

minutes of the Typhoid Investigation Committee, the Secretary of the latter is instructed to write a letter to the Executive Committee about this resolution. (April 26, 1922.)

BACTERIOLOGICAL

1. *Report of Doctor Arguelles.*—Upon the request of Doctor Davison, Doctor Arguelles submitted the feces examinations from San Lazaro Hospital for typhoid fever from January 1 to April 30, 1922.

Positives	15
Negatives	727
	<hr/>
Total of specimens.....	742

P. H. S. FORM No......

PHILIPPINE HEALTH SERVICE TYPHOID FEVER

District No.

Subdistrict No.

Case No.

GENERAL DATA

Date of onset reported, date

by address

Name **age** **sex**

S. C. _____ race _____

Treated by	now	address	present
	before		when taken ill
	before		before illness

Hospital date immunized
by whom number of injections kind of vaccination
used date previous attack, date

Absence from Manila within last 30 days prior to illness	{	where	date	duration.....
		where	date	duration.....
		vacation	picnic	excursion
		number in the party		

Occupation employed by business
address

(If student) last day of attendance

Food-handler { patient, how long where
in family, number of members duration
where number of family
members

Number of family members {adults}
 {children} boarders {children}
 {adults}

Visitors domestic No. of cases in household and visitors.

No. _____ dates _____

Immunization in family, boarders, visitors, domestics.....

Dates of immunization

House { _____

Sanitation in house water (if artesian well, give location).

Flies

Disposal of excreta

Surrounding

WATER, MILK, AND FOOD (ONE MONTH BEFORE ONSET)

Restaurants { where name of owner daily
breakfast lunch supper

Water, kind _____ places _____ bottled _____ name _____
of factory (if artesian well, give location) _____

Milk, kind name of dealers how used
amount

Ice cream places amount how often
 Oysters at home other places how used
 where secured
 Vegetables kind raw where bought
 Remarks

PATIENT

Isolated where precautions nursing
 History of association with suspected or actual typhoid case

Widal result date stool result
 dates
 Disinfection of discharges disinfectants used
 Method
 Termination of case, died recovered
 Complications
 Remarks

CONTACTS

Name.	Residence.	Occupation.	Business address.
1.....			
2.....			
3.....			
4.....			
5.....			
6.....			
7.....			
8.....			
9.....			
10.....			
11.....			
12.....			

LABORATORY EXAMINATION AFTER RECOVERY

Stool, specimens taken.	Date.	Results.	Date of examination.	Examination made by—

Inspector, physician, or nurse.

**GENERAL STATISTICS FOR OCTOBER,
NOVEMBER, AND DECEMBER, 1922**



GENERAL STATISTICS

[Unless otherwise stated these statistics are for the month of October, 1923]

ESTIMATED POPULATION OF THE CITY OF MANILA FOR 1922¹

BY NATIONALITIES

Nationality.	Popula- tion.
Americans	3,134
Filipinos	273,497
Spaniards	1,955
Other Europeans	1,126
Chinese	17,856
All others	2,186
Total.....	299,754

BY DISTRICTS

Health districts.	Popula- tion.
No. 1, Intramuros.....	36,856
No. 2, Melsic.....	102,678
No. 4, Sampaloc.....	48,651
No. 5, Tondo.....	79,477
No. 6, Paco.....	32,097
Total.....	299,754

¹ Estimated on the basis of last figures published by the Census Office.

METEOROLOGICAL REPORT FOR MANILA CENTRAL OBSERVATORY DEDUCED FROM HOURLY OBSERVATIONS, OCTOBER, 1922

Temperature.				Relative humidity.									
Date.	Pressure ¹ mean.	In shade. ²			Underground.		Mean.	Daily mean maximum.	Day.	Daily mean minimum.	Day.		
		Mean.	Absolute maximum.	Day.	Absolute minimum.	Day.							
												0.50 m.	
												8 a. m. mean.	2 p. m. mean.
°C.		°C.		°C.		Per cent.		Per cent.		Per cent.			
1-10.....	mm. 758.78	26.4	32.4	5	21.6	3.10	29.5	29.7	87.3	9	81.4	7	
11-20.....	59.16	25.9	32.9	17	22.7	11	29.3	29.5	85.2	16	78.6	11	
21-31.....	59.38	26.4	33.1	24	22.1	23	29.5	29.7	86.4	27	77.1	29	

Date.	Wind.				Atmometer ² (open air).				Sunshine.		Rainfall.	
	Prevailing direction.	Velocity.			Total.	Daily total maximum.	Day.	Total.	Daily maximum.	Day.	Total.	Rainy days.
		Total.	Daily total maximum.	Day.								
1-10.....	NE quad	Km. 1,384.0	243.0	7	mm. 26.2	3.8	6	h. 46	m. 50	6	mm. 48.8	7
11-20.....	E	908.5	143.0	17	22.1	3.3	11	46	05	17	25.2	7
21-31.....	E	1,186.5	147.0	29	31.6	3.9	24.29	75	30	24	15.1	4

BIRTHS REPORTED IN THE CITY OF MANILA

[Stillbirths not included]

Nationality.	Male.	Female.	Total.	Annual birth rate per 1,000.
Americans.....	5	10	15	56.89
Filipinos.....	572	530	1,102	47.47
Spaniards.....		2	2	12.05
Other Europeans.....	4	3	7	73.25
Chinese.....	40	26	66	43.55
All others.....	3	5	8	43.12
Total.....	624	576	1,200	47.17

BIRTHS, BY DISTRICTS

Health districts.	Legitimates.			Illegitimates.			Grand total.	Annual birth rate per 1,000.
	Male.	Female.	Total.	Male.	Female.	Total.		
No. 1, Intramuros.....	110	108	218	5	6	11	229	73.21
No. 2, Meisic.....	112	82	194	8	7	15	209	23.98
No. 4, Sampaloc.....	78	91	169	5	4	9	178	43.11
No. 5, Tondo.....	220	189	409	19	7	26	435	64.49
No. 6, Paco.....	63	78	141	4	4	8	149	54.69
Total.....	583	548	1,131	41	28	69	1,200	47.17

Number of births attended by physician, living, 329; stillbirths, 24.

Number of births attended by midwife, living, 136; stillbirths, 2.

Number of births attended by family, living, 735; stillbirths, 24.

NUMBER OF DEATHS AND DEATH RATE PER 1,000 AMONG RESIDENTS IN THE CITY OF MANILA, BY NATIONALITIES

[Stillbirths not included]

Nationality.	Male.	Female.	Total.	Annual death rate per 1,000.
Americans.....	2	1	3	11.28
Filipinos.....	250	224	474	20.42
Spaniards.....	2	1	3	18.08
Other Europeans.....				
Chinese.....	15	2	17	11.22
All others.....	3	3	6	16.17
Total.....	272	228	500	19.65

TOTAL DEATHS BY SOCIAL CONDITION, INCLUDING TRANSIENTS

Social condition.	Male.	Female.
Married.....	95	78
Divorced.....	1	
Widowed.....	24	51
Single.....	208	123
Conditions not stated.....	1	1
Total.....	329	253
Grand total.....	582	

Stillbirths.....	50
Number of deaths with medical attendance.....	301
Number of deaths without medical attendance.....	231

DEATHS BY AGES IN THE CITY OF MANILA

[Stillbirths not included]

Ages.	Residents.		Transients.		Total.
	Male.	Female.	Male.	Female.	
Under 80 days.....	30	20	.....	.....	50
80 days to under 1 year.....	50	39	5	4	98
1 year to under 2 years.....	14	12	3	1	30
2 years to 4 years.....	25	11	5	3	44
5 years to 9 years.....	10	4	4	.....	18
10 years to 14 years.....	8	8	2	1	19
15 years to 19 years.....	10	10	2	4	26
20 years to 29 years.....	33	26	8	4	71
30 years to 39 years.....	18	17	9	3	47
40 years to 49 years.....	26	22	6	2	56
50 years to 59 years.....	16	12	8	1	37
60 years to 69 years.....	15	10	5	1	31
70 years to 79 years.....	8	15	.....	1	24
80 years to 89 years.....	4	11	.....	.....	15
90 years to 99 years.....	5	8	.....	.....	13
100 years and over.....	.....	2	.....	.....	2
Age not stated.....	.....	1	.....	.....	1
Total.....	272	228	57	25	582

DEATHS AND DEATH RATE PER 1,000, BY DISTRICTS, INCLUDING TRANSIENT

[Stillbirths not included]

Health districts.	Deaths.	Annual death rate per 1,000.
No. 1, Intramuros.....	119	38.04
No. 2, Melsic.....	90	10.33
No. 4, Sampaloc.....	87	21.07
No. 5, Tondo.....	235	34.84
No. 6, Paco.....	51	18.72
Total.....	582	28.88

NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG RESIDENTS IN THE CITY OF MANILA—Continued

[Stillbirths not included]

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
<i>III. Diseases of the circulatory system.</i>													
78. Acute endocarditis.....				2									2
79. Organic diseases of the heart.....			9	8									17
80. Angina pectoris.....				1									1
81. Diseases of the arteries, atheroma, aneurysm, etc.....									1				1
<i>IV. Diseases of the respiratory system.</i>													
89. Acute bronchitis.....			17	16									33
90. Chronic bronchitis.....			5	6					1				12
91. Broncho-pneumonia.....			21	15									36
92. Pneumonia.....			6	2					2		1		11
93. Pleurisy.....				1									1
95. Gangrene of the lungs.....			1										1
96. Asthma.....			2	2									4
<i>V. Diseases of the digestive system.</i>													
99. Diseases of the mouth and annæa.....				1									1
100. Diseases of the pharynx.....			1										1
102. Ulcer of the stomach.....											1		1
103. Other diseases of the stomach (cancer excepted).....				1									1
104. Diarrhœa and enteritis (under 2 years).....			3	1									4
105. Diarrhœa and enteritis (2 years and over).....				2						1			3
108. Appendicitis and typhlitis.....			3										3
109. Hernias, intestinal obstructions.....				1									1
113. Cirrhosis of the liver.....				1									1
115. Other diseases of the liver.....			2										2
117. Simple peritonitis (nonpuerperal).....				1					1				2
118. Other diseases of the digestive system (cancer and tuberculosis excepted).....				1									1
<i>VI. Nonvenereal diseases of the genito-urinary system and annæa.</i>													
119. Acute nephritis.....			7	2						1			10
120. Bright's disease.....			7	7	1								15

NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG TRANSIENTS IN THE CITY OF MANILA

[Stillbirths not included]

Causes of death.	Americans.		Filipinos.		Spaniards		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
<i>I. General diseases.</i>													
1. Typhoid fever.				2									6
4. Malaria			4	1									3
6. Measles			2										1
9. Diphtheria and croup			1										1
14. Dysentery													3
17. Leprosy			1	1									1
20. Purulent infection and septicæmia				1									1
27. Beriberi			1										2
27a. Beriberi, infantile.													2
28. Tuberculosis of the lungs.			15	4									20
37. Syphilis.	1		1							1			2
<i>II. Diseases of the nervous system and of the organs of special sense.</i>													
61. Simple meningitis:													
(1) Simple meningitis.													
64. Cerebral hæmorrhage, apoplexy			1	1									2
68. Other forms of mental alienation.			1										1
<i>III. Diseases of the circulatory system.</i>													
79. Organic diseases of the heart	1			1									2
<i>IV. Diseases of the respiratory system.</i>													
89. Acute bronchitis													
91. Broncho-pneumonia			3	1									4
92. Pneumonia			4	2									6
			1										1
<i>V. Diseases of the digestive system.</i>													
100. Diseases of the pharynx.													
104. Diarrhoea and enteritis (under 2 years)			2	1									3

INFANT MORTALITY

Causes of death.	Under 24 hours.	24 hours to under 36 hours.	36 hours to under 48 hours.	48 hours to under 14 days.	14 days to under 1 year.	Total.
10. Influenza					1	1
14. Dysentery					1	1
24. Tetanus				2	1	3
27a. Beriberi, infantile	2			8	30	40
30. Tuberculous meningitis	1				1	1
37. Syphilis					1	1
61. Simple meningitis:						
(1) Simple meningitis					3	3
89. Acute bronchitis					27	27
90. Chronic bronchitis					6	6
91. Broncho-pneumonia					7	7
92. Pneumonia					1	1
100. Diseases of the pharynx					1	1
104. Diarrhoea and enteritis					5	5
119. Acute nephritis					1	1
120. Bright's disease					1	1
145. Other diseases of the skin and annexe					2	2
150. Congenital malformations (stillbirths not included):						
(2). Congenital malformations of the heart				1		1
151. Congenital debility, icterus and sclerema:						
(1). Premature birth (not stillborn)	4	1				5
(2). Congenital debility	9		1	14	11	35
152. Other causes peculiar to early infancy:						
(1). Injuries at birth (not stillborn)		1				1
(2). Other causes peculiar to early infancy				2	2	
155b. Other acute poisonings					1	1
Total	15	2	1	27	103	148

ANTI-PLAGUE CAMPAIGN IN THE CITY OF MANILA

Number of spring traps set	21,945
Number of rats caught by spring traps	5,097
Number of cage traps set	730
Number of rats caught by cage traps	25
Number and kind of baits (coconuts)	22,675
Number of poison portions placed	31,416
Number of rats found poisoned	997
Number of rats killed by clubs and other weapons	1,948
Number of rats found dead from other causes	839
Total number of rats otherwise caught, found dead or killed	8,906
Total number of rats sent to the laboratory for examination	8,906
Total number of rats found positive for plague	0

TYPHOID AND PARATYPHOID FEVER REPORTED DURING THE MONTH OF OCTOBER, 1922, CITY OF MANILA, RESIDENTS ONLY

CASES

Reported.	Health districts—										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Living:											
Male.....	2	0	13	0	7	1	14	0	2	0	39
Female.....	3	1	10	2	8	0	8	2	3	1	38
Dead:											
Male.....	0	1	0	0	0	0	0	0	0	1	2
Female.....	2	1	13	0	7	1	14	0	2	1	41
Total:											
Male.....	2	1	13	0	7	1	14	0	2	1	41
Female.....	3	2	10	3	8	0	9	2	3	1	41
Grand total..	5	3	23	3	15	1	23	2	5	2	82

**TYPHOID AND PARATYPHOID FEVER REPORTED DURING THE MONTH OF
OCTOBER, 1922, CITY OF MANILA, RESIDENTS ONLY—Continued**

DEATHS

Sex.	Health districts—										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Male.....	1	1	1	1	2	0	1	0	3	1	11
Female.....	1	1	0	1	2	0	2	0	2	0	9
Total.....	2	2	1	2	4	0	3	0	5	1	20

Total cases reported within the month in the City of Manila.....	118
Resident cases.....	84
Non-resident cases.....	27
Foreign cases.....	2
Total deaths reported within the month in the City of Manila.....	28
Deaths among resident cases.....	20
Deaths among non-resident cases.....	6
Deaths among foreign cases.....	0
Total cases confirmed as typhoid fever.....	109
Autopsy.....	0
Blood Culture.....	0
Clinically, positive.....	78
Feces.....	2
Widal reaction.....	29
Cases confirmed as paratyphoid fever.....	0
Cases not confirmed.....	4

Paratyphoid fever—None.

32—Typhoid carriers—Living, 32; Dead body, 0.

**DYSENTERIE REPORTED DURING THE MONTH OF OCTOBER, 1922, CITY OF
MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts—										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Living:											
Male	2	0	1	1	0	0	0	0	0	0	4
Female	0	0	1	0	1	0	2	1	0	0	5
Dead:											
Male	0	0	0	0	0	1	0	1	0	0	2
Female	0	0	0	0	0	0	0	1	0	0	1
Total:											
Male	2	0	1	1	0	1	0	1	0	0	6
Female	0	0	1	0	1	0	2	2	0	0	6
Grand total..	2	0	2	1	1	1	2	3	0	0	12

DYSENTERIES REPORTED DURING THE MONTH OF OCTOBER, 1922, CITY OF MANILA, RESIDENTS ONLY—Continued.

DEATHS

Sex.	Health districts—										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Male	0	0	1	0	1	0	0	1	0	0	3
Female	0	0	0	0	0	0	0	2	0	0	2
Total.....	0	0	1	0	1	0	0	3	0	0	5

Total cases reported within the month in the City of Manila.....	18
Resident cases.....	12
Non-resident cases.....	6
Total deaths reported within the month in the City of Manila.....	8
Deaths among resident cases.....	5
Deaths among non-resident cases.....	3
Reported as:	
Acute dysentery.....	3
Amoebic dysentery.....	0
Bacillary dysentery.....	0
Chronic dysentery.....	0
Dysentery.....	15
Erroneously reported as dysentery.....	0
Total	18

CONFIRMED CHOLERA CASES REPORTED DURING THE MONTH OF OCTOBER, 1922, CITY OF MANILA, RESIDENTS ONLY

CASES

Reported.	Health districts—										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Living:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Grand total..	0	0	0	0	0	0	0	0	0	0	0

DEATHS

Sex.	Health districts—										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	Hos- pital.	Home.	
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total.....	0	0	0	0	0	0	0	0	0	0	0

Total cases reported within the month in the City of Manila.....	0
Non-resident cases	0
Foreign cases.....	0
Resident cases.....	0
Resident cases confirmed as cholera.....	0
Resident cases not confirmed.....	0
Total deaths reported within the month in the City of Manila.....	0
Deaths among non-resident cases	0
Deaths among foreign cases.....	0
Deaths among resident cases confirmed as cholera.....	0
Deaths among resident cases not confirmed.....	0

Cholera Carriers—1 Living.

**DIPHTHERIA REPORTED DURING THE MONTH OF OCTOBER, 1922, CITY OF
MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts—										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	
Living:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Grand total..	0	0	0	0	0	0	0	0	0	0	0

DEATHS

Sex.	Health districts—										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	Hospi- tal.	Home.	
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total.....	0	0	0	0	0	0	0	0	0	0	0

Total cases reported within the month in the City of Manila.....	4
Resident cases.....	3
Non-resident cases.....	1
Resident cases confirmed as diphtheria.....	0
Resident cases not confirmed.....	3
Total deaths reported within the month in the City of Manila.....	1
Deaths among resident cases confirmed as diphtheria.....	0
Deaths among non-resident cases.....	1

Diphtheria Carriers—None.

**OTHER COMMUNICABLE DISEASES REPORTED IN THE CITY OF MANILA
DURING THE MONTH OF OCTOBER, 1922**

RESIDENTS

Diseases.	Cases.		Deaths.	
	Males.	Females.	Males.	Females.
Malaria.....	8	3	1	2
Varicella.....	0	0	0	0
Smallpox.....	3	4	0	0
Measles.....	0	0	0	0
Whooping cough.....	8	4	0	0
Influenza.....	0	1	0	0
Bubonic plague.....	6	3	2	0
Beriberi.....	0	0	0	0
Beriberi, infantile.....	2	3	2	3
Pulmonary tuberculosis.....	24	14	24	14
Tuberculosis of all forms.....	78	69	53	51
	6	4	6	4

**OTHER COMMUNICABLE DISEASE REPORTED IN THE CITY OF MANILA
DURING THE MONTH OF OCTOBER, 1922—Continued**

NON-RESIDENTS

Diseases.	Cases.		Deaths.	
	Males.	Females.	Males.	Females.
Malaria.....	6	5	2	0
Variceloid.....	0	0	0	0
Varicella.....	0	0	0	1
Smallpox.....	0	0	0	0
Measles.....	1	1	1	0
Whooping cough.....	0	0	0	0
Influenza.....	0	0	0	0
Bubonic plague.....	0	0	0	0
Beriberi.....	2	0	1	0
Beriberi, infantile.....	0	2	0	2
Pulmonary tuberculosis.....	21	6	16	4
Tuberculosis of all forms.....	0	0	0	0

REPORT ON THE DISTRIBUTION OF ASSORTED SERA AND VACCINES

Sera and vaccines.	On hand October 1, 1922.	Received during the month.	Total to be accounted for.	Dis- tributed during the month.	Remain- ing at the end of the month.
Anti-diphtheric serum (units).....		1,077,000	1,077,000	230,000	847,000
Anti-dysenteric serum (ampoules).....	18	50	68	50	18
Anti-tetanic serum (units).....		162,000	162,000	162,000	
Cholera vaccine (c.c.).....	4,590	12,000	16,590	10,500	6,090
Dried vaccine virus (units).....	14,000	30,000	44,000	27,500	16,500
Fresh vaccine virus (units).....	140,900	200,000	340,900	192,200	148,700
Gonococcus vaccine (ampoules).....		12	12	12	
Mixed typhoid and cholera vaccine (c.c.).....	140	53,960	54,100	50,480	3,620
Normal horse serum (ampoules).....					
Plague vaccine (ampoules).....					
Pure typhoid vaccine (c. c.).....	2,160	13,000	20,160	12,030	8,130
Streptococcus vaccine (ampoules).....		6	6	6	

**SMALLPOX VACCINATIONS IN THE CITY OF MANILA, DURING THE MONTH OF
OCTOBER, 1922**

Health districts.	Total vaccina- tions.	Total inspec- tions.	Positive.	Negative.
No. 1, Intramuros.....	686	265	159	106
No. 2, Meisic.....	1,570	456	316	140
No. 4, Sampaloc.....	630	446	275	171
No. 5, Tondo.....	879	696	486	210
No. 6, Paco.....	1,000	630	337	293
Total.....	4,765	2,493	1,573	920

**CONSOLIDATED CHOLERA VACCINATIONS IN THE CITY OF MANILA
FOR THE MONTH OF OCTOBER, 1922**

(See consolidated table of MIXED VACCINATIONS in the City of Manila)

**CONSOLIDATED TYPHOID VACCINATIONS IN THE CITY OF MANILA
FOR THE MONTH OF OCTOBER, 1922**

Districts.	Number of persons vaccinated.					
	Males.					
	Single injections.		Double injections.		Triple injections.	
	A.	C.	A.	C.	A.	C.
No. 1, Intramuros.....	1					
No. 2, Meisic.....						
No. 4, Sampaloc.....	590	520	1,082	745	4	3
No. 5, Tondo.....						
No. 6, Paco.....						
Total.....	591	520	1,082	745	4	3

Districts.	Number of persons vaccinated.						Total injections.		
	Females.								
	Single injections.		Double injections.		Triple injections.				
	A.	C.	A.	C.	A.	C.	Single.	Double.	Triple.
No. 1, Intramuros	3						4		
No. 2, Meisic									
No. 4, Sampaloc	286	332	496	445	3		1,728	2,768	10
No. 5, Tondo									
No. 6, Paco									
Total	289	332	496	445	3		1,732	2,768	10

Note: A, means adults; C, children.

**CONSOLIDATED MIXED (TYPHOID AND CHOLERA) VACCINATIONS IN THE
CITY OF MANILA FOR THE MONTH OF OCTOBER, 1922**

Districts.	Number of persons vaccinated.					
	Males.					
	Single injections.		Double injections.		Triple injections.	
	A.	C.	A.	C.	A.	C.
No. 1, Intramuros.....	809	168	682	356	11	
No. 2, Meisic.....	1,052	81	1,860	65	749	
No. 4, Sampaloc.....	287	222	53	2		
No. 5, Tondo.....	157	736	84	457	9	2
No. 6, Paco.....	161	524	121	1,264	89	789
Total.....	2,466	1,731	2,800	2,144	858	791

Districts.	Number of persons vaccinated.						Total injections.		
	Females.								
	Single injections.		Double injections.		Triple injections.				
	A.	C.	A.	C.	A.	C.	Single.	Double.	Triple.
No. 1, Intramuros.	398	180	204	56	.....	.....	1,555	1,298	11
No. 2, Meisic.	702	68	1,070	57	598	.....	1,908	8,052	1,347
No. 4, Sampaloc.	199	121	17	6	.....	.....	829	78	.....
No. 5, Tondo.	211	452	84	580	7	1	1,556	1,205	19
No. 6, Paco.	102	375	68	964	34	593	1,162	2,417	1,505
Total.	1,612	1,196	1,443	1,663	639	594	7,005	8,050	2,882

Note: A, means adults; C, children.

TOTAL VACCINATIONS OF SMALLPOX IN THE PROVINCES FOR THE YEAR 1922¹

Provinces.	Vaccinations.	Inspections.	Positives.	Negatives.
Abra.....	11,192	9,623	5,985	3,638
Agusan.....	7,432	5,316	2,186	3,130
Albay.....	69,600	48,361	31,392	16,969
Antique.....	17,996	15,914	10,062	5,852
Bataan.....	12,402	12,193	9,432	2,761
Batanes.....	716	645	169	476
Batangas.....	58,520	31,300	16,387	14,913
Bohol.....	43,401	34,825	22,388	12,437
Bukidnon.....	3,331	2,411	1,280	1,131
Bulacan.....	34,191	23,708	17,358	6,350
Cagayan.....	17,822	11,841	7,661	4,180
Camarines Norte.....	2,621	2,378	1,686	692
Camarines Sur.....	38,320	26,671	19,387	7,284
Capiz.....	44,466	40,447	29,275	11,172
Catanduanes.....	57,912	43,600	27,984	15,616
Cavite.....	18,212	17,466	11,489	5,977
Cebu.....	112,219	81,978	45,205	36,773
Cotabato.....	16,877	8,988	1,974	7,014
Cullion Leper Colony.....	827	817	369	448
Davao.....	12,208	9,881	6,317	3,564
Ilocos Norte.....	21,679	18,885	8,114	10,771
Ilocos Sur.....	63,289	46,327	30,211	16,116
Iloilo.....	66,724	40,167	30,553	9,614
Isabela.....	10,342	8,281	2,843	5,438
Laguna.....	21,331	15,884	9,577	6,307
La Union.....	23,785	16,919	7,442	9,477
Lanao.....	9,958	6,648	3,801	1,847
Leyte.....	116,068	71,285	53,225	18,060
Marinduque.....	13,829	10,299	6,538	3,761
Masbate.....	11,178	2,634	1,308	1,276
Mindoro.....	11,993	9,370	5,479	3,891
Misamis.....	12,220	5,722	3,126	2,596
Mountain Province.....	20,800	11,372	7,691	3,681
Nueva Ecija.....	169,442	116,426	67,543	47,888
Nueva Vizcaya.....	3,147	3,038	2,320	718
Occidental Negros.....	43,692	32,130	16,663	15,767
Oriental Negros.....	97,898	62,347	37,960	24,887
Palawan.....	2,701	2,572	1,320	1,252
Pampanga.....	20,206	12,840	8,986	3,854
Pangasinan.....	165,260	146,760	77,607	69,153
Rizal.....	37,687	30,961	18,286	12,675
Romblon.....	16,007	12,135	7,376	4,759
Samar.....	18,724	11,172	5,901	5,271
Sorsogon.....	5,821	5,533	3,956	1,627
Sulu.....	3,716	3,275	2,101	1,174
Surigao.....	15,071	12,476	7,311	5,165
Tarlac.....	22,467	10,353	6,871	3,482
Tayabas.....	47,253	41,456	27,327	14,129
Zambales.....	11,252	10,694	6,410	4,284
Zamboanga.....	9,330	6,882	4,032	2,850
Total.....	1,662,135	1,211,256	739,614	471,642

NOTE: ¹ Compilation of reports received since January.

Other reports not yet received.

**CONSOLIDATED CHOLERA VACCINATIONS REPORTED IN THE PROVINCES SINCE
JANUARY, 1922¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Abra ²	438	1,652	2,090
Albay.....	21,912	11,191	33,103
Antique.....	3,750	2,851	6,601
Bataan.....	914	475	1,389
Batangas.....	11,117	9,724	20,841
Bohol.....	1,987	1,172	3,159
Bulacan.....	8,744	6,717	15,461
Cagayan.....	6,265	5,599	11,864
Camarines Norte.....	1,429	214	1,643
Capiz.....	7,795	4,167	11,962
Catanduanes.....	654	480	1,084
Cavite.....	7,104	4,192	11,296
Cebu.....	3,562	1,694	5,256
Cotabato.....	708	164	872
Davao.....	159	61	220
Ilocos Norte.....	403	666	1,069
Ilocos Sur.....	3,786	2,722	6,468
Iloilo.....	972	1,178	2,150
Laguna.....	5,130	7,664	12,794
La Union.....	3,854	2,564	6,418
Leyte.....	1,356	796	2,152
Marinduque.....	1,948	2,475	4,423
Mindoro.....	3,235	1,269	4,504
Misamis.....	1,422	731	2,153
Nueva Ecija.....	1,520	1,476	2,996
Nueva Vizcaya.....	676	949	1,625
Oriental Negros.....	4,912	5,791	10,703
Pampanga.....	4,584	3,847	8,431
Pangasinan.....	5,674	4,268	9,942
Rizal.....	19,886	11,225	31,111
Romblon.....	624	206	830
Sorsogon.....	1,310	703	2,013
Sulu.....	913	159	1,072
Tarlac.....	654	355	1,009
Tayabas.....	2,295	318	2,613
Zambales.....	2,704	2,398	5,097
Zamboanga.....	1,230	1,121	2,351
Total.....	145,576	103,179	248,755

¹ Compilation of reports received since January.² Corrected.

Other reports not yet received.

**CONSOLIDATED TYPHOID VACCINATIONS REPORTED IN THE PROVINCES SINCE
JANUARY, 1922¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Bulacan.....	1,187	59	1,246
Capiz.....	647	250	897
Cavite.....	36	11	47
Davao.....	3	.....	3
Ilocos Sur.....	1,002	851	1,853
Isabela.....	34	.....	34
Laguna.....	2,885	2,115	5,000
La Union.....	408	110	518
Pampanga.....	846	466	1,312
Pangasinan.....	1,418	412	1,830
Rizal.....	102	22	124
Total.....	8,568	4,296	12,864

¹ Compilation of reports received since January.

Other reports, not yet received.

**CONSOLIDATED MIXED (TYPHOID AND CHOLERA) VACCINATIONS REPORTED
IN THE PROVINCES SINCE JANUARY, 1922¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Abra.....	669	1,211	1,880
Antique.....	1,540	2,631	4,171
Bataan.....	582	450	1,032
Batanes.....	98	14	112
Batangas.....	8,492	6,931	15,423
Bohol.....	683	159	842
Bulacan.....	2,424	2,823	5,247
Cagayan.....	2,663	1,769	4,432
Camarines Norte.....	533	281	814
Capiz.....	249	106	355
Cavite.....	4,030	2,711	6,741
Cebu.....	3,630	1,424	5,054
Cotabato.....	1,565	288	1,853
Davao.....	683	247	930
Ilocos Norte.....	7,351	3,354	10,705
Ilocos Sur.....	10,040	3,920	13,960
Iloilo.....	12,078	9,055	21,133
Isabela.....	567	182	749
Jolo.....	1,320	1,727	3,047
Laguna.....	1,084	894	1,978
Lanao ²	3,507	3,125	6,632
La Union.....	6,930	4,055	10,985
Leyte.....	1,783	1,567	3,350
Marinduque.....	777	2,125	2,902
Maabate.....	661	252	913
Misamis.....	1,092	1,837	2,929
Nueva Ecija.....	2,101	2,253	4,354
Nueva Vizcaya.....	678	623	1,301
Oriental Negros.....	794	1,596	2,390
Pampanga.....	8,408	7,572	15,980
Pangasinan.....	7,257	3,296	10,553
Rizal.....	9,878	3,058	12,936
Romblon.....	896	761	1,657
Samar.....	3,716	347	4,063
Sorsogon.....	1,807	1,053	2,860
Surigao.....	1,172	877	2,049
Tarlac.....	2,500	1,422	3,922
Tayabas.....	5,946	1,568	7,514
Zambales.....	1,983	1,880	3,863
Zamboanga.....	904	1,696	2,600
Total.....	123,081	81,140	204,221

¹ Compilation of reports received.² Corrected.

Other reports not yet received.

SMALLPOX REPORTED FROM THE PROVINCES FOR THE MONTH OF OCTOBER, 1922

(No case; no death reported during the month)

**CHOLERA REPORTED FROM THE PROVINCES FOR THE MONTH
OF OCTOBER, 1922**

(No case; no death reported during the month)

**OPERATION OF THE SANITARY ENGINEERING OFFICE IN THE CITY OF
MANILA DURING THE MONTH OF OCTOBER, 1922**

	Health Districts—					Total.
	No. 1. Intra- muros.	No. 2. Meisic.	No. 4. Sampaloc.	No. 5. Tondo.	No. 6. Paco.	
Orders pending October 1922:						
Minor.....	19	11	19	37	16	102
Sewer.....	13	40	17	2	3	75
Vacating.....	3	27	8		2	40
Filling.....	5	2	10	8	6	31
Total.....	40	80	54	47	27	248
Orders issued during the month:						
Minor.....	7	6	5	1	3	22
Sewer.....	2		1			3
Vacating.....	3		2			5
Filling.....	2		1	4		7
Total.....	14	6	9	5	3	37
Grand total.....	54	86	63	52	30	285
Orders completed during the month:						
Minor.....	5	12	1	3	4	25
Sewer.....	2	3	2			7
Vacating.....	2					2
Filling.....	1			1		2
Total.....	10	15	3	4	4	36
Order cancelled during the month:						
Minor.....		1				1
Sewer.....						
Vacating.....				1		1
Filling.....						
Total.....		1		1		2
Orders pending during the month:						
Minor.....	21	4	23	35	15	98
Sewer.....	13	37	16	2	3	71
Vacating.....	4	27	10		2	43
Filling.....	6	2	11	10	6	35
Total.....	44	70	60	47	26	247
Strong materials, plans approved:						
New buildings including additions and alterations.....	14	9	17	56	6	102
Permits for minor building constructions:						
Approved.....	25	7	27	34	10	103
Disapproved.....	2	2	4	8	3	19
New buildings completed.....	17	6	23	36	8	90
Light and mixed material constructions:						
Approved.....			11	1	4	16
Disapproved.....			3	1	1	5
Total number of building projects passed upon.....	58	24	85	136	32	335
Prosecutions:						
Conviction.....		2	1			3
Dismissals.....						
Amount of fines.....		P20.00	P25.00			P45.00
Plumbing permits issued.....	14	36	27	47	7	131
Plumbing projects completed.....	20	18	27	46	6	117
Premises connected to the Sanitary Sewer to September, 1922.....	1,559	2,697	972	473	384	6,085
Premises connected during the month.....	5	4	7	7	2	25
Total.....	1,564	2,701	979	480	386	6,110

NOTE.—

¹ Intramuros includes Ermita and Malate.

² Meisic includes Sta. Cruz, Binondo, and San Miguel.

³ Sampaloc includes Quiapo, San Miguel, and Sta. Mesa.

⁴ Paco includes Pandacan and Sta. Ana.

GENERAL STATISTICS

[Unless otherwise stated these statistics are for the month of November, 1922]

ESTIMATED POPULATION OF THE CITY OF MANILA FOR 1922¹

BY NATIONALITIES

Nationality.	Population.
Americans	8,134
Filipinos	273,497
Spaniards	1,955
Other Europeans	1,126
Chinese	17,856
All others	2,186
Total	299,754

BY DISTRICTS

Health districts.	Population.
No. 1, Intramuros	36,856
No. 2, Meisic	102,673
No. 4, Sampaloc	48,661
No. 5, Tondo	79,477
No. 6, Paco	82,097
Total	299,754

¹ Estimated on the basis of last figures published by the Census Office.

METEOROLOGICAL REPORT FOR MANILA CENTRAL OBSERVATORY DEDUCED FROM HOURLY OBSERVATIONS, NOVEMBER, 1922

390

Date.	Pres- sure mean. ¹	Temperature.				Relative humidity.					
		In shade. ²			Underground.		Mean.	Daily mean maxi- mum.	Daily mean mini- mum.	Day.	
		Absolute maxi- mum.	Day.	Absolute mini- mum.	Day.	0.50 m. 8 a. m. mean.					2 p. m. mean.
							°C.	°C.	°C.	°C.		Per cent.	Per cent.
1-10.....	758.84	25.8	33.0	2	21.2	29.0	29.2	85.3	92.5	4	79.0
11-20.....	58.34	25.9	32.6	20	22.1	28.9	29.1	84.1	87.6	17	79.0
21-30.....	60.26	25.3	32.5	21	20.4	28.7	28.8	82.2	94.4	29	72.6
Date.	Prevailing direction.	Wind.			Atmidometer (open air). ²		Sunshine.		Rainfall.		
		Total.	Daily total maxi- mum.	Day.	Total.	Daily maxi- mum.	Total.	Day.	Total.	Rainy days.	
1-10.....	NE	Km. 1,122.5	Km. 183.0	4	mm. 19.7	mm. 3.8	h. m. 47 20	h. m. 8 15	mm. 55.2	7	
11-20.....	NE	1,348.0	280.5	16	24.1	3.4	42 30	7 25	2 6	2	
21-30.....	NE	1,408.5	280.0	28	26.2	4.5	53 15	8 20	33.6	7	

¹ Corrected for instrumental error and for temperature and reduced to sea level. Correction to standard gravity, 1.72 mm.

² These values are taken from instrument mounted in the Observatory Park, 1.5 meters above ground.

BIRTHS REPORTED IN THE CITY OF MANILA

[Stillbirths not included]

Nationality.	Male.	Female.	Total.	Annual birth rate per 1,000.
Americans.....	4	14	18	69.98
Filipinos.....	500	466	966	43.00
Spaniards.....	4	2	6	37.86
Other Europeans.....	1	2	3	32.43
Chinese.....	22	15	37	26.22
All others.....	2	2	4	22.28
Total.....	533	501	1,034	42.00

BIRTHS, BY DISTRICTS

Health districts.	Legitimates.			Illegitimates.			Grand total.	Annual birth rate per 1,000.
	Male.	Female.	Total.	Male.	Female.	Total.		
No. 1, Intramuros.....	100	88	188	9	10	19	207	67.88
No. 2, Meisic.....	78	73	151	5	4	9	160	18.97
No. 4, Sampaloc.....	103	91	194	8	3	11	205	51.30
No. 5, Tondo.....	157	150	307	11	12	23	330	60.65
No. 6, Paco.....	58	63	121	4	7	11	132	60.07
Total.....	496	465	961	37	36	73	1,034	42.00

Number of births attended by physicians, living, 295; stillbirths, 18.

Number of births attended by midwife, living, 103; stillbirths, 3

Number of births attended by family, living, 636; stillbirths, 19.

NUMBER OF DEATHS AND DEATH RATE PER 1,000 AMONG RESIDENTS IN THE CITY OF MANILA, BY NATIONALITIES

[Stillbirths not included]

Nationality.	Male.	Female.	Total.	Annual death rate per 1,000.
Americans.....	2	1	3	11.65
Filipinos.....	261	201	462	20.57
Spaniards.....	1	1	2	12.46
Other Europeans.....				
Chinese.....	23	1	24	18.86
All others.....	1		1	5.56
Total.....	288	204	492	19.98

TOTAL DEATHS BY SOCIAL CONDITION, INCLUDING TRANSIENTS

Social condition.	Male.	Female.
Married.....	120	86
Divorced.....		
Widowed.....	28	34
Single.....	200	123
Condition not stated.....	5	
Total.....	348	243
Grand total.....	591	

Stillbirths, 40

Number of deaths with medical attendance, 326

Number of deaths without medical attendance, 265

DEATHS BY AGES IN THE CITY OF MANILA

[Stillbirths not included]

Ages.	Residents.		Transients.		Total.
	Male.	Female.	Male.	Female.	
Under 30 days.....	29	21	.....	1	51
30 days to under 1 year.....	60	37	8	4	109
1 year to under 2 years.....	18	12	1	1	32
2 years to 4 years.....	11	12	4	3	30
5 years to 9 years.....	11	9	1	1	22
10 years to 14 years.....	8	1	1	1	11
15 years to 19 years.....	11	8	2	5	26
20 years to 29 years.....	33	24	9	4	70
30 years to 39 years.....	23	17	6	9	55
40 years to 49 years.....	26	17	15	2	60
50 years to 59 years.....	24	18	5	4	51
60 years to 69 years.....	17	9	3	2	31
70 years to 79 years.....	9	10	4	1	24
80 years to 89 years.....	4	4	.....	.....	8
90 years to 99 years.....	3	5	.....	.....	8
100 years and over.....	1	.....	.....	.....	1
Age not stated.....	.....	.....	.....	.....	.....
Total.....	288	204	59	38	589

One male Filipino of unknown age and one female Filipina of 90 years of age, permanent residence unknown not included in this table.

DEATHS AND DEATH RATE PER 1,000, BY DISTRICTS, INCLUDING TRANSIENTS

[Stillbirths not included]

Health districts.	Deaths.	Annual death rate per 1,000.
No. 1, Intramuros.....	132	43.60
No. 2, Meisic.....	80	9.49
No. 4, Sampaloc.....	86	21.52
No. 5, Tondo.....	242	37.07
No. 6, Paco.....	51	19.34
Total.....	591	24.00

NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG RESIDENTS IN THE CITY OF MANILA—Continued

[Stillbirths not included]

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
III. Diseases of the circulatory system.													
78. Acute endocarditis.			3										3
79. Organic diseases of the heart.			5	4									11
80. Angina pectoris.			1	1					2				2
81. Diseases of the arteries, aneurysm, etc.									4				4
IV. Diseases of the respiratory system.													
89. Acute bronchitis.			14	10						1			25
90. Chronic bronchitis.			4	3					1				8
91. Broncho-pneumonia.			13	15									28
92. Pneumonia.			7	2					1				10
94. Pulmonary congestion, pulmonary apoplexy.				1									1
96. Asthma.			2	2									4
98. Other diseases of the respiratory system (tuberculosis excepted)			1										1
V. Diseases of the digestive system.													
102. Ulcer of the stomach.				2									2
103. Other diseases of the stomach (cancer excepted)			3										3
104. Diarrhoea and enteritis (under 2 years)			8	6									14
105. Diarrhoea and enteritis (2 years and over).			9	4									13
108. Appendicitis and typhlitis.			1	1									1
115. Other diseases of the liver.			5										5
117. Simple peritonitis (nonpuerperal)			1	1									2
VI. Nonvenereal diseases of the genito-urinary system and annexa.													
119. Acute nephritis.			1	4									8
120. Bright's disease.			4	9					2				15
122. Other diseases of the kidneys and annexa.			1						2				1
132. Salpingitis and other diseases of the female genital organs				1									1

VII. The puerperal state

185. Puerperal hemorrhage.....						3				3
187. Puerperal septicæmia.....						3				3
188. Puerperal albuminuria and convulsions.....						1				1

VIII. Diseases of the skin and of the cellular tissue.

144. Acute abscess.....					1					1
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IX. Diseases of the bones and of the organs of locomotion.

146. Diseases of the bones (tuberculosis excepted).....						1				1
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X. Malformations.

150. Congenital malformations (stillbirths not included):										
(3) Congenital malformations.....	1				1					2

XI. Diseases of early infancy.

151. Congenital debility, icterus and sclerema:										
(1) Premature birth (not stillborn).....					1	2				3
(2) Congenital debility.....					21	14			1	36
152. Other diseases peculiar to early infancy:										
(1) Injuries at birth (not stillborn).....					2					2
(2) Other causes peculiar to early infancy.....						2				2

XII. Old age.

154. Senility.....					11	14				25
--------------------	--	--	--	--	----	----	--	--	--	----

XIII. Affections caused by external causes.

167. Burns (conflagration excepted).....						1				1
172. Traumatism by fall.....					2					2
176. Traumatism by other crushing (vehicles, railways, landlides, etc.).....					1	1			1	3
181. Electricity (lightning excepted).....					1					1
183. Homicide by cutting or piercing instrument.....					1					1
185. Fractures (cause not specified).....								1		1

XIV. Ill-defined diseases.

189. Cause of death not specified or ill defined.....					1	2				3
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Total.....	2	1	261	201	1	1	23	1	1	492
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Grand total.....	3		462		2		24		1	492
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NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG TRANSIENTS IN THE CITY OF MANILA

[Stillbirths not included]

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
I. General diseases.													
1. Typhoid fever.....			9	5									10
4. Malaria.....			2	1									2
10. Influenza.....			1	1									2
14. Dysentery.....													1
17. Leprosy.....			1										1
19. Other epidemic diseases.....			2										1
20. Purulent infection and septicæmia.....													1
21. Glanders.....				1									1
27a. Beriberi, infantile.....				1									1
28. Tuberculosis of the lungs.....			6	6									12
31. Abdominal tuberculosis.....			2										2
37. Syphilis.....			1										1
40. Cancer and other malignant tumors of the stomach, liver.....													1
42. Cancer and other malignant tumors of the female genital organs.....				1									1
45. Cancer and other malignant tumors of other organs or of organs not specified.....			1										1
53. Leuchaemia.....			1										1
II. Diseases of the nervous system and of the organs of special sense.													
61. Simple meningitis:													
(1) Simple meningitis.....			1	1									1
68. Other forms of mental alienation.....	1		1										3
III. Diseases of the circulatory system.													
79. Organic diseases of the heart.....	2		4	1									7
IV. Diseases of the respiratory system.													
89. Acute bronchitis.....			4	1									5
90. Chronic bronchitis.....			1	1									2
91. Broncho-pneumonia.....			2	2									4
92. Pneumonia.....	1			1									2
V. Diseases of the digestive system.													
103. Other diseases of the stomach (cancer excepted).....				1									1
104. Diarrhœa and enteritis (under 2 years).....				1									1
105. Diarrhœa and enteritis (2 years and over).....			1										2

INFANT MORTALITY

Causes of death.	Under 24 hours.	24 hours to under 36 hours.	36 hours to under 48 hours.	48 hours to under 14 days.	14 days to under 1 year.	Total.
24. Tetanus				3		3
27a. Beriberi, infantile				7	39	46
30. Tuberculous meningitis					1	1
37. Syphilis					1	1
45. Cancer and other malignant tumors of other organs or of organs not specified				1		1
61. Simple meningitis:						
(1) Simple meningitis					2	2
71. Convulsions of infants					2	2
89. Acute bronchitis					25	25
90. Chronic bronchitis					4	4
91. Broncho-pneumonia					13	13
92. Pneumonia					2	2
103. Other diseases of the stomach (cancer excepted)					1	1
104. Diarrhoea and enteritis					9	9
117. Simple peritonitis (nonpuerperal)					1	1
119. Acute nephritis					1	1
120. Bright's disease					1	1
144. Acute abscess					1	1
150. Congenital malformations (stillbirths not included):						
(3) Other Congenital malformations	1			1	1	3
151. Congenital debility, icterus, and sclerema:						
(1) Premature birth (not still-born)	3					3
(2) Congenital debility	11	2		10	13	36
152. Other causes peculiar to early infancy:						
(1) Injuries at birth (not still-born)	2					2
(2) Other causes peculiar to early infancy	1	1				2
Total	18	3		22	117	160

ANTI-PLAGUE CAMPAIGN IN THE CITY OF MANILA

Number of spring traps set	20,275
Number of rats caught by spring traps	4,697
Number of wire traps set	714
Number of rat caught by wire traps	15
Number and kind of baits (coconuts)	20,989
Number of poison portions placed	18,859
Number of rats found poisoned	1,076
Number of rats killed by clubs and other weapons	1,985
Number of rats found dead from other causes	916
Total number of rats otherwise caught, found dead or killed	8,689
Total number of rats sent to the laboratory for examination	8,689
Total number of rats found positive for plague	0

**TYPHOID AND PARATYPHOID FEVER REPORTED DURING THE MONTH OF
SEPTEMBER, 1922, CITY OF MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts—										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	7	0	12	2	5	1	8	2	2	0	39
Female.....	9	0	3	3	5	0	9	2	1	0	32
Dead:											
Male.....	2	0	0	0	0	0	2	0	0	0	4
Female.....	1	0	0	0	0	0	0	1	0	1	3
Total:											
Male.....	9	0	12	2	5	1	10	2	2	0	43
Female.....	10	0	3	3	5	0	9	3	1	1	35
Grand total..	19	0	15	5	10	1	19	5	3	1	78

DEATHS

Sex.	Health districts—										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	2	0	4	0	1	0	4	1	0	0	12
Female.....	1	0	1	1	1	0	0	1	0	1	6
Total.....	3	0	5	1	2	0	4	2	0	1	18

Total cases reported within the month in the City of Manila.....	116
Resident cases.....	85
Non-resident cases.....	30
Foreign cases.....	1
Total deaths reported within the month in the City of Manila.....	28
Deaths among resident cases.....	18
Deaths among non-resident cases.....	10
Deaths among foreign cases.....	0
Total cases confirmed as typhoid fever.....	106
Autopsy.....	0
Blood culture.....	0
Clinically positive.....	85
Facies.....	3
Widal reaction.....	18
Cases confirmed as paratyphoid fever (stool examination).....	1
Cases not confirmed.....	9
Paratyphoid fever.....	Residents—Cases, 1; Death, 0. Non-residents—None.
Typhoid carriers—2 Living.	

**DYSENTERIES REPORTED DURING THE MONTH OF NOVEMBER, 1922,
CITY OF MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts—										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	0	0	5	1	2	0	2	0	0	0	10
Female.....	1	1	1	0	1	0	1	0	0	0	5
Dead:											
Male.....	0	0	1	0	0	0	0	0	1	0	2
Female.....	0	0	0	0	0	2	0	0	0	0	2
Total:											
Male.....	0	0	6	1	2	0	2	0	1	0	12
Female.....	1	1	1	0	1	2	1	0	0	0	7
Grand total..	1	1	7	1	3	2	3	0	1	0	19

DEATHS

Sex.	Health districts—										
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		Total.
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	0	0	1	0	1	0	0	0	1	0		3
Female.....	1	1	0	0	0	2	0	0	0	0	4
Total.....	1	1	1	0	1	2	0	0	1	0	7

Total cases reported within the month in the City of Manila.....	21
Resident cases.....	19
Non-resident cases.....	2
Total deaths reported within the month in the City of Manila.....	8
Deaths among resident cases.....	7
Deaths among non-resident cases.....	1
Reported as:	
Acute dysentery.....	2
Amoebic dysentery.....	1
Bacillary dysentery.....	4
Chronic dysentery.....	0
Dysentery.....	14
Erroneously reported as dysentery.....	0
Total	21

**CONFIRMED CHOLERA CASES REPORTED DURING THE MONTH OF
NOVEMBER, 1922, CITY OF MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts—										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Grand total..	0	0	0	0	0	0	0	0	0	0	0

DEATHS

Sex.	Health districts—										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total.....	0	0	0	0	0	0	0	0	0	0	0

Total cases reported within the month in the City of Manila.....	0	1
Non-resident cases.....	0	
Foreign cases.....	1	
Resident cases.....	0	
Resident cases confirmed as cholera.....	1	
Resident cases not confirmed (found negative).....	0	
Total deaths reported within the month in the City of Manila.....	0	0
Deaths among non-resident cases.....	0	
Deaths among foreign cases.....	0	
Deaths among resident cases confirmed as cholera.....	0	
Deaths among resident cases not confirmed.....	0	
Cholera carriers—None.		

**DIPHTHERIA REPORTED DURING THE MONTH OF NOVEMBER, 1922,
CITY OF MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts—										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	0	0	0	0	0	0	1	0	0	0	1
Female.....	1	0	1	0	0	0	0	0	0	0	1
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	1	0	1
Total:											
Male.....	0	0	0	0	0	0	1	0	0	0	1
Female.....	1	0	0	0	0	0	0	0	1	0	2
Grand total..	1	0	0	0	0	0	1	0	1	0	3

DEATHS

Sex.	Health districts—										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	1	0	1
Total.....	0	0	0	0	0	0	0	0	1	0	1

Total cases reported within the month in the City of Manila.....	12
Resident cases.....	7
Non-resident cases.....	5
Resident cases confirmed as diphtheria.....	3
Resident cases not confirmed.....	4
Non-resident cases confirmed as diphtheria.....	3
Non-resident cases not confirmed.....	2
Total deaths reported within the month in the City of Manila.....	1
Deaths among resident cases confirmed as diphtheria.....	1
Deaths among non-resident cases.....	0
Diphtheria carriers—1 Living.	

**OTHER COMMUNICABLE DISEASES REPORTED IN THE CITY OF MANILA
DURING THE MONTH OF NOVEMBER, 1922**

RESIDENTS

Diseases.	Cases.		Deaths.	
	Male.	Female.	Male.	Female.
Malaria.....	10	3	4	2
Varioloid.....	0	0	0	0
Varicella.....	4	2	0	0
Smallpox.....	0	0	0	0
Measles.....	10	4	0	0
Whooping cough.....	0	0	2	0
Influenza.....	12	3	2	2
Bubonic plague.....	0	0	0	0
Beriberi.....	2	2	2	2
Beriberi, infantile.....	29	16	29	16
Pulmonary tuberculosis.....	87	51	54	36
Tuberculosis of all forms.....	5	7	5	7

NON-RESIDENTS

Diseases.	Cases.		Deaths.	
	Male.	Female.	Male.	Female.
Malaria.....	5	0	2	0
Varioloid.....	0	0	0	0
Varicella.....	0	0	0	0
Smallpox.....	0	0	0	0
Measles.....	0	0	0	0
Whooping cough.....	1	0	0	0
Influenza.....	4	1	1	1
Bubonic plague.....	0	0	0	0
Beriberi.....	0	0	0	0
Beriberi, infantile.....	0	1	0	1
Pulmonary tuberculosis.....	13	13	6	6
Tuberculosis of all forms.....	2	0	2	0

REPORT ON THE DISTRIBUTION OF ASSORTED SERA AND VACCINES

Sera and vaccines.	On hand November 1, 1922.	Received during the month.	Total to be accounted for.	Distributed during the month.	Remaining at the end of the month.
Anti-diphtheric serum (units).....	847,000	.....	847,000	70,000	777,000
Anti-dysenteric serum (ampoules).....	18	50	68	24	44
Anti-tetanic serum (units).....	.....	255,000	255,000	255,000	.....
Cholera vaccine (cc.).....	6,090	3,720	9,810	5,880	3,930
Dried vaccine virus (units).....	16,500	15,000	31,500	31,000	500
Fresh vaccine virus (units).....	148,700	200,000	348,700	203,300	145,400
Gonococcus vaccine (ampoules).....	.....	24	24	24	.....
Mixed typhoid and cholera vaccine (cc.).....	3,620	36,040	39,660	35,300	4,360
Normal horse serum (ampoules).....	.....	.....	.....	.....	.....
Plague vaccine.....	.....	.....	.....	.....	.....
Typhoid and paratyphoid vaccine (cc.).....	8,130	18,000	26,130	18,720	7,410

**SMALLPOX VACCINATIONS IN THE CITY OF MANILA DURING THE MONTH
OF NOVEMBER, 1922**

Health districts.	Total vaccina- tions.	Total inspec- tions.	Positive.	Negative.
No. 1, Intramuros.....	553	281	194	87
No. 2, Meisic.....	881	522	371	151
No. 4, Sampaloc.....	565	363	256	107
No. 5, Tondo.....	756	710	480	230
No. 6, Paco.....	600	443	289	154
Total.....	3,355	2,319	1,590	729

**CONSOLIDATED CHOLERA VACCINATIONS IN THE CITY OF MANILA FOR
THE MONTH OF NOVEMBER, 1922**

See consolidated table of MIXED VACCINATIONS in the City of Manila.

**CONSOLIDATED TYPHOID VACCINATIONS IN THE CITY OF MANILA FOR
THE MONTH OF NOVEMBER, 1922**

See consolidated table of MIXED VACCINATIONS in the City of Manila.

**CONSOLIDATED MIXED (TYPHOID AND CHOLERA) VACCINATIONS IN THE CITY
OF MANILA FOR THE MONTH OF NOVEMBER, 1922**

Districts.	Number of persons vaccinated.					
	Males.					
	Single injections.		Double injections.		Triple injections.	
	A.	C.	A.	C.	A.	C.
No. 1, Intramuros.....	566	146	663	181	4	.....
No. 2, Meisic.....	1,128	81	781	55	649	49
No. 4, Sampaloc.....	252	17	381	277	3	21
No. 5, Tondo.....	266	778	178	498	.....	.....
No. 6, Paco.....	80	386	49	376	40	338
Total.....	2,292	1,408	2,052	1,387	696	408

Districts.	Number of persons vaccinated.						Total injections.		
	Females.								
	Single injections.		Double injections.		Triple injections.				
	A.	C.	A.	C.	A.	C.			
No. 1, Intramuros.....	437	447	473	436	4	.....	1,596	1,753	8
No. 2, Meisic.....	358	71	264	39	199	39	1,638	1,139	936
No. 4, Sampaloc.....	275	15	202	199	.....	8	559	1,059	32
No. 5, Tondo.....	210	533	93	561	.....	.....	1,787	1,330	.....
No. 6, Paco.....	109	341	44	302	35	513	916	771	926
Total.....	1,389	1,407	1,076	1,537	238	560	6,496	6,052	1,902

NOTE.—A, means adults; C, children.

TOTAL VACCINATIONS OF SMALLPOX IN THE PROVINCES FOR THE YEAR, 1922¹

Provinces.	Vaccinations.	Inspections.	Positive.	Negative.
Abra.....	12,211	10,503	6,392	4,111
Agusan.....	7,904	6,430	2,224	3,206
Albay.....	79,201	56,450	36,837	19,613
Antique.....	17,996	15,914	10,062	5,852
Bataan.....	13,478	13,262	10,262	3,000
Batanes.....	716	645	169	476
Batangas.....	71,981	34,159	17,359	16,800
Bohol.....	45,881	37,406	24,087	13,319
Bukidnon.....	3,331	2,411	1,280	1,131
Bulacan.....	34,191	23,708	17,368	6,350
Cagayan.....	17,822	11,841	7,661	4,180
Camarines Norte.....	2,980	2,685	1,893	792
Camarines Sur.....	40,116	28,156	20,370	7,786
Capiz.....	44,466	40,447	29,275	11,172
Catanduanes.....	57,912	43,600	27,984	15,616
Cavite.....	18,212	17,466	11,489	5,977
Cebu.....	112,219	81,978	45,205	36,773
Cotabato.....	16,877	8,988	1,974	7,014
Culion Leper Colony.....	827	817	369	448
Davao.....	12,208	9,881	6,317	3,564
Ilocos Norte.....	24,131	21,063	9,090	11,973
Ilocos Sur.....	71,505	51,890	33,567	18,323
Iloilo.....	66,724	40,167	30,553	9,614
Isabela.....	11,088	8,803	2,969	5,834
Laguna.....	23,790	17,459	10,687	6,772
La Union.....	23,785	16,919	7,442	9,477
Lanao.....	9,958	5,648	3,801	1,847
Leyte.....	119,092	73,193	54,384	18,809
Marinduque.....	16,136	11,357	7,152	4,205
Masbate.....	11,178	2,634	1,358	1,276
Mindoro.....	12,747	9,884	5,841	4,043
Misamis.....	12,277	6,159	3,331	2,828
Mountain Province.....	22,131	13,236	8,920	4,316
Nueva Ecija.....	160,126	116,008	67,895	48,113
Nueva Vizcaya.....	3,390	3,238	2,382	856
Occidental Negros.....	47,254	34,618	17,688	16,930
Oriental Negros.....	104,117	65,053	39,625	25,428
Palawan.....	2,701	2,572	1,320	1,252
Pampanga.....	22,052	14,138	9,884	4,254
Pangasinan.....	165,260	146,760	77,607	69,153
Rizal.....	37,687	30,961	18,286	12,675
Romblon.....	16,007	12,135	7,376	4,759
Samar.....	20,135	11,916	6,062	5,854
Sorsogon.....	9,439	8,746	5,918	2,828
Sulu.....	3,716	3,275	2,101	1,174
Surigao.....	15,677	12,966	7,646	5,320
Tarlac.....	33,505	20,917	12,879	8,038
Tayabas.....	47,253	41,456	27,327	14,129
Zambales.....	11,252	10,694	6,410	4,284
Zamboanga.....	9,924	7,740	4,460	3,280
Total.....	1,743,566	1,267,352	772,528	494,824

¹ Compilation of reports received since January.

Other reports not yet received.

**CONSOLIDATED CHOLERA VACCINATIONS REPORTED IN THE PROVINCES
SINCE JANUARY, 1922¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Abra.....	438	1,652	2,090
Albay.....	21,912	11,191	33,103
Antique.....	3,760	2,851	6,601
Bataan.....	914	475	1,389
Batangas.....	11,150	9,739	20,889
Bohol.....	1,987	1,172	3,159
Bulacan.....	8,744	6,717	15,461
Cagayan.....	6,698	5,779	12,477
Camarines Norte.....	1,429	214	1,643
Capiz.....	7,795	4,167	11,962
Catanduanes.....	654	430	1,084
Cavite.....	7,104	4,192	11,296
Cebu.....	4,303	2,093	6,396
Cotabato.....	708	164	872
Davao.....	159	61	220
Ilocos Norte.....	403	666	1,069
Ilocos Sur.....	3,736	2,722	6,458
Iloilo.....	972	1,178	2,150
Laguna.....	5,425	7,886	13,311
La Union.....	3,854	2,564	6,418
Leyte.....	1,356	796	2,152
Marinduque.....	1,948	2,475	4,423
Mindoro.....	3,955	1,373	5,328
Misamis.....	1,422	731	2,153
Nueva Ecija.....	1,520	1,476	2,996
Nueva Vizcaya.....	676	949	1,625
Oriental Negros.....	5,017	6,419	11,436
Pampanga.....	4,584	3,847	8,431
Pangasinan.....	5,674	4,268	9,942
Rizal.....	19,886	11,225	31,111
Romblon.....	624	206	830
Sorsogon.....	1,841	1,572	3,413
Sulu.....	913	159	1,072
Tarlac.....	654	355	1,009
Tayabas.....	2,295	318	2,613
Zambales.....	2,704	2,393	5,097
Zamboanga.....	1,230	1,121	2,351
Total.....	148,439	105,596	254,030

¹ Compilation of reports received since January.

Other reports not yet received.

**CONSOLIDATED TYPHOID VACCINATIONS REPORTED IN THE PROVINCES SINCE
JANUARY, 1922¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Bulacan.....	1,448	176	1,624
Capiz.....	647	250	897
Cavite.....	36	11	47
Davao.....	3	.....	3
Ilocos Sur.....	1,002	851	1,853
Isabela.....	34	.....	34
Laguna.....	2,927	2,252	5,179
La Union.....	408	110	518
Pampanga.....	2,532	2,969	5,501
Pangasinan.....	2,048	715	2,763
Rizal.....	102	22	124
Zambales.....	332	100	432
Total.....	11,519	7,456	18,975

¹ Compilation of reports received since January.

Other reports not yet received.

**CONSOLIDATED MIXED (TYPHOID AND CHOLERA) VACCINATIONS REPORTED
IN THE PROVINCES SINCE JANUARY, 1922¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Abra.....	759	1,617	2,376
Antique.....	2,411	3,917	6,328
Bataan.....	615	472	1,087
Batanes.....	98	14	112
Batangas.....	8,965	7,771	16,736
Bohol.....	683	159	842
Bulacan.....	2,711	3,053	5,764
Cagayan.....	2,663	1,769	4,432
Camarines Norte.....	533	261	814
Capiz.....	249	106	355
Cavite.....	4,030	2,711	6,741
Cebu.....	3,630	1,424	5,054
Cotabato.....	1,951	555	2,506
Davao.....	683	247	930
Ilocos Norte.....	8,127	3,706	11,833
Ilocos Sur.....	10,988	4,293	15,281
Iloilo.....	13,108	9,580	22,688
Isabela.....	567	182	749
Jolo.....	1,692	1,745	3,437
Laguna.....	1,345	1,192	2,537
Lanao.....	3,607	3,125	6,732
La Union.....	7,585	4,560	12,145
Leyte.....	2,240	2,019	4,259
Marinduque.....	1,154	2,739	3,893
Maabate.....	661	252	913
Misamis.....	1,092	1,837	2,929
Nueva Ecija.....	2,253	2,816	4,569
Nueva Vizcaya.....	678	623	1,301
Oriental Negros.....	1,255	1,973	3,228
Pampanga.....	8,450	7,607	16,057
Pangasinan.....	8,043	3,850	11,893
Rizal.....	9,895	3,136	13,031
Romblon.....	896	761	1,657
Samar.....	3,716	347	4,063
Sorsogon.....	1,807	1,053	2,860
Surigao.....	1,172	877	2,049
Tarlac.....	2,854	1,675	4,529
Tayabas.....	5,946	1,568	7,514
Zambales.....	2,980	2,568	5,548
Zamboanga.....	904	1,696	2,600
Total.....	132,896	89,376	222,272

¹ Compilation of reports received since January.

Other reports not yet received.

**SMALLPOX REPORTED FROM THE PROVINCES, FOR THE MONTH OF
NOVEMBER, 1922**

Province and town.	Cases.	Deaths.
Samar:		
Calbiga.....	1	
Total.....	1	

**CHOLERA REPORTED FROM THE PROVINCES, FOR THE MONTH OF
NOVEMBER, 1922**

Province and town.	Cases.	Deaths.
Laguna:		
San Pablo.....	1	
Total.....	1	

**OPERATION OF THE SANITARY ENGINEERING OFFICE IN THE CITY OF
MANILA, DURING THE MONTH OF NOVEMBER, 1922**

	Health districts—					Total.
	No. 1. Intra- muros.	No. 2. Meisic.	No. 4. Sam- paloc.	No. 5. Tondo.	No. 6. Paco.	
Orders pending October, 1922:						
Minor.....	21	4	23	35	15	98
Sewer.....	13	37	16	2	3	71
Vacating.....	4	27	10	.....	2	43
Filling.....	6	2	11	10	6	35
Total.....	44	70	60	47	26	247
Orders issued during the month:						
Minor.....	7	8	8	3	.....	26
Sewer.....	1	.....	3	4	.....	8
Vacating.....	2	.....	1	.....	7	10
Filling.....	.....	.....	1	.....	.....	1
Total.....	10	8	13	7	7	45
Grand total.....	54	78	73	54	33	292
Orders completed during the month:						
Minor.....	2	7	5	5	1	20
Sewer.....	.....	1	.....	.....	.....	1
Vacating.....	.....	.....	.....	.....	.....	.....
Filling.....	.....	.....	.....	.....	.....	.....
Total.....	2	8	5	5	1	21
Orders cancelled during the month:						
Minor.....	.....	.....	.....	.....	.....	.....
Sewer.....	1	.....	.....	.....	.....	1
Vacating.....	.....	12	.....	.....	.....	12
Filling.....	.....	.....	.....	.....	.....	.....
Total.....	1	12	.....	.....	.....	13
Orders pending November, 1922:						
Minor.....	26	5	26	33	14	104
Sewer.....	13	37	19	6	3	78
Vacating.....	6	14	11	.....	9	40
Filling.....	6	2	12	10	6	36
Total.....	51	58	68	49	32	258
Strong materials, plans approved:						
New buildings including additions and alterations.....	18	9	27	34	14	102
Permits for minor building constructions:						
Approved.....	21	7	20	35	18	101
Disapproved.....	8	3	5	10	.....	26
New buildings completed.....	4	14	11	22	5	56
Light and mixed material constructions:						
Permits approved.....	.....	.....	14	11	6	31
Permits disapproved.....	.....	.....	.....	1	4	5
Total number of building projects passed upon.....	51	33	77	113	47	321
Prosecutions:						
Convictions.....	.....	.....	2	1	.....	3
Dismissals.....	.....	2	.....	.....	.....	2
Amount of fines.....	.....	.....	P35	P10	.....	P45
Plumbing permits issued.....	21	35	18	32	9	115
Plumbing projects completed.....	15	21	32	43	4	115
Premises connected to the sanitary sewer to October, 1922.....	1,564	2,701	979	480	386	6,110
Premises connected during the month.....	3	3	4	6	1	17
Total.....	1,567	2,704	983	486	387	6,127

Intramuros including Ermita and Malate; Meisic including Sta. Cruz, Binondo and San Nicolas; Sampaloc including Quiapo, San Miguel and Sta. Mesa; Paco including Pandacan and Sta. Ana.

GENERAL STATISTICS

[Unless otherwise stated these statistics are for the month of December, 1922]

ESTIMATED POPULATION OF THE CITY OF MANILA FOR 1922¹

BY NATIONALITIES

Nationality.	Population
Americans	3,134
Filipinos	273,497
Spaniards	1,955
Other Europeans	1,126
Chinese	17,856
All others	2,186
Total.	299,754

BY DISTRICTS

Health districts.	Population.
No. 1, Intramuros	36,856
No. 2, Meisic	102,678
No. 4, Sampaloc	48,651
No. 5, Tondo	79,477
No. 6, Paco	32,097
Total.	299,754

¹ Estimated on the basis of last figures published by the Census Office.

BIRTHS REPORTED IN THE CITY OF MANILA

[Stillbirths not included]

Nationality.	Male.	Female.	Total.	Annual birth rate per 1,000.
Americans.....	4	3	7	26.82
Filipinos.....	518	442	960	41.86
Spaniards.....	2	1	3	18.08
Other Europeans.....	1	1	1	10.46
Chinese.....	31	23	54	35.63
All others.....	2	5	7	37.73
Total.....	557	475	1,032	40.56

BIRTHS, BY DISTRICTS

Health districts.	Legitimates.			Illegitimates.			Grand total.	Annual birth rate per 1,000.
	Male.	Female.	Total.	Male.	Female.	Total.		
No. 1, Intramuros.....	100	113	213	9	6	15	228	72.89
No. 2, Meisic.....	90	64	154	2	7	9	163	18.70
No. 4, Sampaloc.....	95	61	156	4	7	11	167	40.44
No. 5, Tondo.....	162	141	303	17	11	28	331	49.07
No. 6, Paco.....	76	61	137	2	4	6	143	52.49
Total.....	523	440	963	34	35	69	1,032	40.56

Number of births attended by physician, living, 320; stillbirths, 14.

Number of births attended by midwife, living, 86; stillbirths, 5.

Number of births attended by family, living, 626; stillbirths, 25.

NUMBER OF DEATHS AND DEATH RATE PER 1,000 AMONG RESIDENTS IN THE CITY OF MANILA, BY NATIONALITIES

[Stillbirths not included]

Nationality.	Male.	Female.	Total.	Annual death rate per 1,000.
Americans.....	2	2	2	7.52
Filipinos.....	338	255	593	25.55
Spaniards.....	2	2	4	24.11
Other Europeans.....	22	8	25	16.50
Chinese.....	5	1	6	32.34
All others.....				
Total.....	369	261	630	24.76

TOTAL DEATHS BY SOCIAL CONDITION, INCLUDING TRANSIENTS

[Stillbirths not included]

Social condition.	Male.	Female.
Married.....	121	80
Divorced.....	38	54
Single.....	258	164
Condition not stated.....	7	8
Total.....	414	302
Grand total.....	716	

Stillbirths 44
 Number of deaths with medical attendance..... 337
 Number of deaths without medical attendance..... 379

DEATHS BY AGES IN THE CITY OF MANILA

[Stillbirths not included]

Ages.	Residents.		Transients.		Total.
	Male.	Female.	Male.	Female.	
Under 30 days	55	39	.....	1	95
30 days to under 1 year	71	46	16	9	142
1 year to under 2 years	31	14	1	2	48
2 years to 4 years	17	18	.....	2	37
5 years to 9 years	8	6	.....	.....	14
10 years to 14 years	5	1	.....	2	8
15 years to 19 years	13	8	1	2	24
20 years to 29 years	33	28	6	5	72
30 years to 39 years	29	27	2	11	69
40 years to 49 years	24	15	5	3	47
50 years to 59 years	31	20	6	3	60
60 years to 69 years	20	11	3	1	35
70 years to 79 years	16	10	2	.....	28
80 years to 89 years	8	12	1	.....	21
90 years to 99 years	7	6	1	.....	14
100 years and over . . . . .	.....	.....	.....	.....	.....
Age not stated	1	.....	.....	.....	1
Total	369	261	44	41	* 715

* One male Filipino 42 years of age permanent residence unknown not included.

DEATHS AND DEATH RATE PER 1,000, BY DISTRICTS, INCLUDING TRANSIENTS

[Stillbirths not included]

Health districts.	Deaths.	Annual death rate per 1,000.
No. 1, Intramuros	139	44.44
No. 2, Meisic	102	11.70
No. 4, Sampaloc	116	28.09
No. 5, Tondo	278	41.21
No. 6, Paco	81	29.73
Total	716	28.14

[Stillbirths not included]

I. General diseases.

117. Diseases of the nervous system and of the organs of special sense.

- (1) Simple meningitis
- (2) Cerebro-spinal meningitis (undefined)
- (3) Cerebro-spinal fever

[illegible]

NUMBER OF DEATHS BY NATIONALITY AND SEX, OCCURRING AMONG TRANSIENTS IN THE CITY OF MANILA

[Stillbirths not included]

Causes of death.	Americans.		Filipinos.		Spaniards.		Other Europeans.		Chinese.		All others.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
<i>I. General diseases.</i>													
1. Typhoid fever.....				1									1
9. Diphtheria and croup.....				1									1
14. Dysentery.....				1									1
19. Other epidemic diseases.....		1								1			2
20. Purulent infection and septicæmia.....				2									2
22. Anthrax.....				1									1
27a. Beriberi, infantile.....				1									1
28. Tuberculosis of the lungs.....				6									6
30. Tuberculous meningitis.....				2						1			3
31. Abdominal tuberculosis.....													1
39. Cancer and other malignant tumors of the buccal cavity.....				2									2
45. Cancer and other malignant tumors of other organs or of organs not specified.....													1
54. Anæmia chlorosis.....	1			1									2
<i>II. Diseases of the nervous system and of the organs of special sense.</i>													
61. Simple meningitis:													
(1) Simple meningitis.....			2	1									3
64. Cerebral hæmorrhage, apoplexy.....				1									1
<i>III. Diseases of the circulatory system.</i>													
78. Acute endocarditis.....													1
79. Organic diseases of the heart.....			1	1							1		2
<i>IV. Diseases of the respiratory system.</i>													
89. Acute bronchitis.....			3	4									7
91. Broncho-pneumonia.....			1	4									5
92. Pneumonia.....				1									1

V. Diseases of the digestive system.

104. Diarrhoea and enteritis (under 2 years)	5	1							5
108. Appendicitis and typhilitis									1
116. Other diseases of the liver	1								1
117. Simple peritonitis (nonpuerperal)	2	1							3

VI. Nonvenereal diseases of the genito-urinary system and annexa.

119. Acute nephritis	1	2							3
120. Bright's diseases	2	1							3
124. Diseases of the bladder	2								2
132. Salpingitis and other diseases of the female genital organs		1							1

VII. The puerperal state.

135. Puerperal hemorrhage		1							1
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XII. Old age.

154. Senility	3								3
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XIII. Affections caused by external causes

157. Suicide by hanging or strangulation							1		1
--	--	--	--	--	--	--	---	--	---

XIV. Ill-defined diseases.

189. Cause of death not specified or ill-defined		1							1
--	--	---	--	--	--	--	--	--	---

Total	1	1	38	40			3	2	86
Grand total	2		78				3	2	85

INFANT MORTALITY

Causes of death.	Under 24 hours.	24 hours to under 36 hours.	36 hours to under 48 hours.	48 hours to under 14 days.	14 days to under 1 year.	Total.
9. Diphtheria.....					1	1
14. Dysentery.....					1	1
24. Tetanus.....				1		1
27a. Beriberi, infantile.....				18	66	84
30. Tuberculous meningitis.....					1	1
37d. Syphilis hereditary.....					1	1
61. Simple meningitis:						
(1) Simple meningitis.....					10	10
(3) Cerebrospinal fever.....					1	1
71. Convulsions of infants.....				1		1
89. Acute bronchitis.....					31	31
90. Chronic bronchitis.....					3	3
91. Broncho-pneumonia.....				1	11	12
92. Pneumonia.....					1	1
104. Diarrhoea and enteritis.....					14	14
109. Hernia, intestinal obstruction.....				1		1
117. Simple peritonitis (nonpuerperal).....					1	1
120. Bright's disease.....					2	2
150. Congenital malformations (stillbirths not included):						
(2) Congenital malformations of the heart.....				1		1
151. Congenital debility, icterus, and sclerema:						
(1) Premature birth (not still-born).....	9	2				11
(2) Congenital debility.....	19	1		23	9	52
152. Other causes peculiar to early infancy:						
(2) Other causes peculiar to early infancy.....	4			1	2	7
Total.....	32	3		47	155	237

ANTI-PLAGUE CAMPAIGN IN THE CITY OF MANILA

Number of spring traps set.....	21,466
Number of rats caught with spring traps.....	4,567
Number of wire traps set.....	744
Number of rats caught by wire traps.....	3
Number and kind of baits (coconuts).....	22,210
Number of poison portions placed.....	18,091
Number of rats found poisoned.....	1,146
Number of rats killed by clubs and other weapons.....	1,861
Number of rats found dead from other causes.....	1,019
Total number of rats otherwise caught, found dead or killed.....	8,596
Total number of rats sent to the laboratory for examination.....	8,596
Total number of rats found positive for plague.....	0

**TYPHOID AND PARATYPHOID FEVER REPORTED DURING THE MONTH OF
SEPTEMBER, 1922, CITY OF MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts—										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	5	0	11	1	7	0	5	0	3	0	37
Female.....	4	0	3	0	2	0	11	0	3	0	23
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	1	1	1	0	0	1	0	0	0	4
Total:											
Male.....	5	0	11	1	7	0	5	0	3	0	37
Female.....	4	1	4	1	2	0	12	0	3	0	27
Grand total..	9	1	15	2	9	0	17	0	11	0	64

DEATHS

Sex.	Health districts—										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	2	0	3	0	2	0	1	0	1	0	9
Female.....	0	1	1	1	1	0	5	1	1	0	11
Total.....	2	1	4	1	3	0	6	1	2	0	20

Total cases reported within the month in the City of Manila.....	81
Resident cases	67
Non-resident cases	14
Foreign cases	0
Total deaths reported within the month in the City of Manila.....	21
Deaths among resident cases.....	20
Deaths among non-resident cases.....	1
Deaths among foreign cases.....	0
Total cases confirmed as typhoid fever.....	76
Autopsy	0
Blood culture	0
Clinically positive	54
Feces	0
Widal reaction	22
Cases confirmed as paratyphoid fever.....	0
Cases not confirmed	5

Paratyphoid fever—None.

10 typhoid carriers: living, 9; dead bodies, 1.

**DYSENTERIES REPORTED DURING THE MONTH OF DECEMBER, 1922, CITY OF
MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts—										Total
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	0	0	3	0	1	0	3	0	0	0	7
Female.....	0	0	2	1	0	0	1	0	0	0	4
Dead:											
Male.....	0	1	0	2	0	0	0	1	0	0	4
Female.....	0	0	0	1	0	0	0	2	1	1	5
Total:											
Male.....	0	1	3	2	1	0	3	1	0	0	11
Female.....	0	0	2	2	0	0	1	2	1	1	9
Grand total..	0	1	5	4	1	0	4	3	1	1	20

DEATHS

Sex.	Health districts—										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	0	1	1	2	0	0	0	1	0	0	5
Female.....	0	0	1	1	0	0	0	2	1	1	6
Total.....	0	1	2	3	0	0	0	3	1	1	11

Total cases reported within the month in the City of Manila.....		25
Resident cases	21	
Non-resident cases	4	
Total deaths reported within the month in the City of Manila.....		13
Deaths among resident cases	11	
Deaths among non-resident cases.....	2	
Reported as:		
Acute dysentery	0	
Amoebic dysentery	2	
Bacillary dysentery	1	
Chronic dysentery	1	
Dysentery	20	
Erroneously reported as dysentery (resident case).....	1	
Total		25

**CONFIRMED CHOLERA CASES REPORTED DURING THE MONTH OF DECEMBER,
1922, CITY OF MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts—										
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		Total.
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Grand total..	0	0	0	0	0	0	0	0	0	0	0

DEATHS

Sex.	Health districts—										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total.....	0	0	0	0	0	0	0	0	0	0	0

Total cases reported within the month in the city of Manila.....	2
Non-resident cases.....	0
Foreign cases.....	0
Resident cases.....	2
Resident cases confirmed as cholera.....	0
Resident cases not confirmed (found negative).....	2
Total deaths reported within the month in the city of Manila.....	0
Deaths among non-resident cases.....	0
Deaths among foreign cases.....	0
Deaths among resident cases confirmed as cholera.....	0
Deaths among resident cases not confirmed.....	0

8 cholera carriers; living 5; dead bodies, 3.

**DIPHTHERIA REPORTED DURING THE MONTH OF DECEMBER, 1922, CITY OF
MANILA, RESIDENTS ONLY**

CASES

Reported.	Health districts—										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Living:											
Male.....	1	0	2	0	0	0	0	0	0	0	3
Female.....	0	0	1	0	0	0	0	0	0	0	1
Dead:											
Male.....	0	0	0	0	0	0	0	0	0	0	0
Female.....	0	0	0	0	0	0	0	0	0	0	0
Total:											
Male.....	1	0	2	0	0	0	0	0	0	0	3
Female.....	0	0	1	0	0	0	0	0	0	0	1
Grand total..	1	0	3	0	0	0	0	0	0	0	4

DEATHS

Sex.	Health districts—										Total.
	No. 1.		No. 2.		No. 4.		No. 5.		No. 6.		
	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	Hospital.	Home.	
Male.....	1	0	0	0	0	0	0	0	0	0	1
Female.....	0	0	1	0	0	0	0	0	0	0	1
Total.....	1	0	1	0	0	0	0	0	0	0	2

Total cases reported within the month in the City of Manila.....	10
Resident cases	7
Non-resident cases	3
Resident cases confirmed as diphtheria.....	4
Resident cases not confirmed.....	3
Non-resident cases confirmed as diphtheria	2
Non-resident cases not confirmed	1
Total deaths reported within the month in the City of Manila.....	4
Deaths among resident cases confirmed as diphtheria.....	2
Deaths among non-resident cases	2
Diphtheria carriers—None.	

**OTHER COMMUNICABLE DISEASES REPORTED IN THE CITY OF MANILA,
DURING THE MONTH OF DECEMBER, 1922**

RESIDENTS

Diseases.	Cases.		Deaths.	
	Male.	Female.	Male.	Female.
Malaria.....	6	2		2
Varioloid.....				
Varicella.....	3	1		
Smallpox.....				
Measles.....	8	8		
Whooping cough.....		1		1
Influenza.....	8	5		1
Bubonic plague.....				
Beriberi.....				
Beriberi, infantile.....	45	27	45	27
Pulmonary tuberculosis.....	91	66	67	47
Tuberculosis of other forms.....	11	6	11	6
Encephalitis lethargica.....	21	10	5	8

NONRESIDENTS

Diseases.	Cases.		Deaths.	
	Male.	Female.	Male.	Female.
Malaria.....	7	1		
Varioloid.....				
Varicella.....				
Smallpox.....				
Measles.....				
Whooping cough.....	1			
Influenza.....	2	1		
Bubonic plague.....				
Beriberi.....				
Beriberi, infantile.....	6	6	6	6
Pulmonary tuberculosis.....	19	9	5	6
Tuberculosis of other forms.....	2	1	2	1
Encephalitis lethargica.....	8	1	2	1

* Includes 1, permanent residence unknown.

REPORT ON THE DISTRIBUTION OF ASSORTED SERA AND VACCINES

Sera and vaccines.	On hand December 1, 1922.	Received during the month.	Total to be accounted for.	Distributed during the month.	Remaining at the end of the month.
Anti-diphtheric serum (units).....	777,000	30,000	807,000	275,000	532,000
Anti-dysenteric serum (ampoules).....	44	56	100	50	50
Anti-tetanic serum (units).....		500,000	500,000	500,000	
Cholera vaccine (c.c.).....	3,930	6,000	9,930	5,470	4,460
Dried vaccine virus (units).....	500	20,000	20,500	20,500	
Fresh vaccine virus.....	145,400	90,000	235,400	122,400	113,000
Gonococcus vaccine (ampoules).....					
Mixed cholera-typhoid vaccine (c.c.).....	4,360	21,000	25,360	23,580	1,780
Normal horse serum (ampoules).....		24	24	24	
Typhoid vaccine (c.c.).....	7,410	14,410	21,820	11,990	9,830

**SMALLPOX VACCINATIONS IN THE CITY OF MANILA DURING THE MONTH OF
DECEMBER, 1922**

Health districts.	Total vaccina- tions.	Total inspec- tions.	Positive.	Negative.
No. 1, Intramuros.....	430	294	242	52
No. 2, Meisic.....	1,963	409	329	80
No. 4, Sampaloc.....	606	228	188	40
No. 5, Tondo.....	802	567	422	145
No. 6, Paco.....	872	470	305	165
Total.....	4,673	1,968	1,486	482

**CONSOLIDATED CHOLERA VACCINATIONS IN THE CITY OF MANILA FOR
THE MONTH OF DECEMBER, 1922**

See consolidated table of MIXED VACCINATIONS in the City of Manila

**CONSOLIDATED TYPHOID VACCINATIONS IN THE CITY OF MANILA FOR THE
MONTH OF DECEMBER, 1922**

See consolidated table of MIXED VACCINATIONS in the City of Manila

**CONSOLIDATED MIXED (TYPHOID AND CHOLERA) VACCINATIONS IN THE
CITY OF MANILA, FOR THE MONTH OF DECEMBER, 1922**

Districts.	Number of persons vaccinated.					
	Males.					
	Single injections.		Double injections.		Triple injections.	
	A.	C.	A.	C.	A.	C.
No. 1, Intramuros	308	131	101	68	.....	.....
No. 2, Meisic	241	28	399	36	747	46
No. 4, Sampaloc	129	4	27	1	.....	.....
No. 5, Tondo	195	56	106	118	2	.....
No. 6, Paco	20	5	15	13	16	82
Total	893	224	648	236	765	128

Districts.	Number of persons vaccinated.						Total injections.		
	Females.								
	Single injections.		Double injections.		Triple injections.				
	A.	C.	A.	C.	A.	C.	Single.	Double.	Tripple.
No. 1, Intramuros ..	224	52	140	269	.....	.....	715	578	.....
No. 2, Meisic	134	17	163	28	335	50	420	626	1,178
No. 4, Sampaloc ..	120	.....	21	.....	.....	.....	253	49	.....
No. 5, Tondo	203	131	44	72	2	.....	585	340	4
No. 6, Paco	30	38	39	33	20	114	93	100	232
Total.....	711	238	407	402	357	164	2,066	1,693	1,414

NOTE.—A, means adults; C, children.

TOTAL VACCINATIONS OF SMALLPOX IN THE PROVINCES FOR THE YEAR 1922¹

Provinces.	Vaccinations.	Inspections.	Positives.	Negatives.
Abra.....	12,818	11,033	6,676	4,357
Agusan.....	7,904	5,430	2,224	3,206
Albay.....	90,097	62,268	40,312	21,956
Antique.....	20,444	18,404	11,453	6,951
Bataan.....	14,297	14,060	10,875	3,185
Batanes.....	716	645	169	476
Batangas.....	84,806	49,471	25,175	24,296
Bohol.....	50,495	41,243	26,732	14,511
Bulacan.....	38,099	26,837	19,377	7,460
Bukidnon.....	3,331	2,411	1,280	1,131
Cagayan.....	21,743	14,941	10,169	4,772
Camarines Norte.....	2,980	2,685	1,893	792
Camarines Sur.....	40,116	28,156	20,370	7,786
Capiz.....	48,851	44,149	31,799	12,350
Catanduanes.....	58,844	44,188	28,320	15,868
Cavite.....	19,724	18,843	12,363	6,480
Cebu.....	121,878	89,954	49,808	40,126
Cotabato.....	17,789	9,425	2,059	7,866
Culion Leper Colony.....	1,095	1,085	497	588
Davao.....	12,326	9,920	6,345	3,575
Ilocos Norte.....	26,379	23,371	10,147	13,224
Ilocos Sur.....	75,314	55,797	36,334	19,463
Iloilo.....	74,399	43,777	33,201	10,576
Isabela.....	11,088	8,803	2,969	5,834
Laguna.....	25,536	19,345	12,047	7,298
La Union.....	27,711	19,235	8,406	10,829
Lanao.....	11,519	5,836	3,871	1,965
Leyte.....	119,092	73,193	54,364	18,809
Marinduque.....	16,894	12,281	7,665	4,616
Masbate.....	11,178	2,634	1,358	1,276
Mindoro.....	13,595	10,374	6,105	4,269
Misamis.....	12,277	6,159	3,331	2,823
Mountain Province.....	22,131	13,236	8,920	4,316
Nueva Ecija.....	160,830	116,657	68,368	48,289
Nueva Vizcaya.....	4,013	3,838	2,826	1,012
Occidental Negros.....	47,254	34,618	17,688	16,930
Oriental Negros.....	115,398	73,909	44,568	29,341
Palawan.....	7,019	5,963	2,898	3,065
Pampanga.....	24,099	16,555	10,844	4,711
Pangasinan.....	193,947	175,597	94,114	81,483
Rizal.....	38,487	32,302	19,042	13,260
Romblon.....	16,007	12,135	7,376	4,759
Samar.....	22,683	13,313	6,887	6,426
Sorsogon.....	11,983	10,920	7,323	3,597
Sulu.....	4,926	4,044	2,622	1,422
Surigao.....	15,677	12,966	7,646	5,320
Tarlac.....	43,684	30,896	19,038	11,858
Tayabas.....	52,004	46,772	30,976	15,796
Zambales.....	11,891	11,224	6,609	4,615
Zamboanga.....	9,924	7,740	4,460	3,280
Total.....	1,895,274	1,397,618	849,919	547,699

¹ Compilation of reports received since January.
Other reports not yet received.

**CONSOLIDATED CHOLERA VACCINATIONS REPORTED IN THE PROVINCES
SINCE JANUARY, 1922¹**

Provinces.	Number of vaccinations.		
	Adults.	Children.	Total.
Abra.....	438	1,652	2,090
Albay.....	24,562	12,473	37,035
Antique.....	3,750	2,851	6,601
Bataan.....	914	475	1,389
Batangas.....	11,150	9,739	20,889
Bohol.....	2,134	1,186	3,320
Bulacan.....	8,744	6,717	15,461
Cagayan.....	6,698	5,779	12,477
Camarines Norte.....	1,429	214	1,643
Capiz.....	8,056	5,308	13,364
Catanduanes.....	654	430	1,084
Cavite.....	7,172	4,213	11,385
Cebu.....	5,829	2,829	8,658
Cotabato.....	708	164	872
Davao.....	159	61	220
Ilocos Norte.....	403	666	1,069
Ilocos Sur.....	3,736	2,722	6,458
Iloilo.....	972	1,178	2,150
Laguna.....	5,668	7,920	13,588
La Union.....	3,854	2,564	6,418
Leyte.....	1,356	796	2,152
Marinduque.....	1,948	2,475	4,423
Mindoro.....	3,955	1,373	5,328
Misamis.....	1,422	731	2,153
Nueva Ecija.....	1,520	1,476	2,996
Nueva Vizcaya.....	676	949	1,625
Oriental Negros.....	5,180	7,379	12,559
Pampanga.....	4,584	3,847	8,431
Pangasinan.....	6,288	4,986	11,274
Rizal.....	19,886	11,225	31,111
Romblon.....	624	206	830
Sorsogon.....	2,319	1,910	4,229
Sulu.....	913	159	1,072
Tarlac.....	654	355	1,009
Tayabas.....	2,295	318	2,613
Zambales.....	2,704	2,393	5,097
Zamboanga.....	1,230	1,121	2,351
Total.....	154,584	110,840	265,424

¹ Compilation of reports received since January.
Other reports not yet received.

**CONSOLIDATED TYPHOID VACCINATIONS REPORTED IN THE PROVINCES
SINCE JANUARY, 1922¹**

Province.	Number of vaccinations.		
	Adults.	Children.	Total.
Abra.....	233	132	365
Batangas.....	79		79
Bulacan.....	1,789	312	2,101
Capiz.....	667	258	925
Cavite.....	36	11	47
Davao.....	3		3
Ilocos Sur.....	2,242	1,459	3,701
Isabela.....	34		34
Laguna.....	3,183	2,386	5,569
La Union.....	408	110	518
Pampanga.....	3,334	3,282	6,616
Pangasinan.....	6,754	2,922	9,676
Rizal.....	102	22	124
Zambales.....	2,205	1,709	3,914
Total.....	21,069	12,603	33,672

¹ Compilation of reports received since January.
Other reports not yet received.

**CONSOLIDATED MIXED (TYPHOID AND CHOLERA) VACCINATIONS REPORTED
IN THE PROVINCES SINCE JANUARY, 1922¹**

Province.	Number of vaccinations.		
	Adults.	Children.	Total.
Abra.....	759	1,617	2,376
Antique.....	2,411	3,917	6,328
Bataan.....	615	472	1,087
Batanes.....	98	14	112
Batangas.....	9,197	8,299	17,496
Bohol.....	683	159	842
Bulacan.....	2,711	3,053	5,764
Camagayan.....	2,663	1,769	4,432
Camarines Norte.....	829	335	1,164
Capiz.....	249	106	355
Cavite.....	4,227	2,803	7,030
Cebu.....	3,610	1,421	5,031
Comabato.....	2,105	624	2,729
Davao.....	1,055	280	1,335
Ilocos Norte.....	8,127	3,706	11,833
Ilocos Sur.....	11,994	4,489	16,483
Iloilo.....	13,878	10,222	24,100
Isabela.....	567	182	749
Jolo.....	1,692	1,745	3,437
Laguna.....	1,345	1,192	2,537
Lanao.....	3,507	3,125	6,632
La Union.....	7,585	4,560	12,145
Leyte.....	2,210	2,019	4,229
Marinduque.....	1,154	2,739	3,893
Masbate.....	661	252	913
Misamis.....	1,780	3,121	4,901
Nueva Ecija.....	2,476	2,336	4,812
Nueva Vizcaya.....	954	791	1,745
Oriental Negros.....	1,255	1,973	3,228
Pampanga.....	8,521	7,637	16,158
Pangasinan.....	8,348	4,185	12,533
Rizal.....	10,383	3,807	14,190
Romblon.....	896	761	1,657
Samar.....	3,716	317	4,033
Sorsogon.....	1,807	1,053	2,860
Surigao.....	1,172	877	2,049
Tarlac.....	2,928	1,762	4,690
Tayabas.....	6,285	1,598	7,883
Zambales.....	3,088	2,584	5,672
Zamboanga.....	904	1,696	2,600
Total.....	138,605	93,631	232,136

¹ Compilation of reports received since January.
Other reports not yet received.

**SMALLPOX REPORTED FROM THE PROVINCES, FOR THE MONTH OF
DECEMBER, 1922**

Province and town.	Case.	Death.
Samar:		
Humarraga.....	1	
Total.....	1	

**CHOLERA REPORTED FROM THE PROVINCES, FOR THE MONTH OF
DECEMBER, 1922**

Province and town.	Case.	Death.
Ilocos Sur:		
Caoayan.....	1	1
Total.....	1	1

**OPERATION OF THE SANITARY ENGINEERING OFFICE IN THE CITY OF
MANILA, DURING THE MONTH OF DECEMBER, 1922**

	Health districts—					Total.
	No. 1. Intra- muros.	No. 2. Meisic.	No. 4. Sampa- loc.	No. 5. Tondo.	No. 6. Paco.	
Orders pending, November, 1922:						
Minor.....	26	5	26	33	14	104
Sewer.....	13	37	19	6	3	78
Vacating.....	6	14	11	.....	9	40
Filling.....	6	2	12	10	6	36
Total.....	51	58	68	49	32	258
Orders issued during the month:						
Minor.....	9	3	1	2	3	18
Sewer.....	.....	.....	2	.....	.....	2
Vacating.....	.....	.....	.....	.....	.....	.....
Filling.....	.....	.....	.....	.....	.....	.....
Total.....	9	3	3	2	3	20
Grand total.....	60	61	71	51	35	278
Orders completed during the month:						
Minor.....	8	8	8	2	1	27
Sewer.....	.....	.....	1	2	.....	3
Vacating.....	2	1	2	.....	.....	5
Filling.....	.....	.....	.....	.....	.....	.....
Total.....	10	9	11	4	1	35
Orders cancelled during the month:						
Minor.....	1	.....	.....	.....	.....	1
Sewer.....	1	.....	1	.....	.....	2
Vacating.....	.....	.....	.....	.....	.....	.....
Filling.....	.....	.....	.....	.....	.....	.....
Total.....	2	.....	1	.....	.....	3
Orders pending, December, 1922:						
Minor.....	26	.....	19	33	16	94
Sewer.....	12	37	19	4	3	75
Vacating.....	4	13	9	.....	9	35
Filling.....	6	2	12	10	6	36
Total.....	48	52	59	47	34	240
Strong materials, plans approved:						
New buildings including additions and alterations.....	19	16	19	65	9	128
Permits for minor building constructions:						
Approved.....	16	15	22	44	10	107
Disapproved.....	1	3	4	8	1	17
New buildings completed.....	16	9	16	25	5	71
Light and mixed material construction:						
Permits approved.....	.....	.....	24	6	10	40
Permits disapproved.....	.....	.....	1	.....	2	3
Total number of building projects passed upon.....	52	43	86	148	37	366
Prosecutions:						
Convictions.....	.....	1	.....	.....	.....	1
Dismissals.....	.....	.....	.....	.....	.....	.....
Amount of fines.....	.....	P15	.....	.....	.....	P15
Plumbing permits issued.....	20	33	18	36	14	121
Plumbing projects completed.....	28	22	20	69	7	146
Premises connected to the sanitary sewer to November, 1922.....	1,567	2,704	983	486	387	6,127
Premises connected during the month.....	6	4	4	14	.....	28
Total.....	1,573	2,708	987	500	387	6,155

Intramuros includes Ermita and Malate; Meisic includes Santa Cruz, Binondo, and San Nicolas; Sampaloc includes Quiapo, San Miguel, and Santa Mesa; Paco includes Pandacan and Santa Ana.

MONTHLY BULLETIN
OF THE
PHILIPPINE HEALTH SERVICE

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